

Archive

The Subscription Magazine for Acorn Users

AUGUST
'94

August 1994 Vol. 7 N° 11 £2.00

Acorn on Information Super-Highway

Archive Glossary

DOS is Different

ARM Programming

Leisure Software Upgrades

Reviews: 10 out of 10 Dinosaurs, Almanac v3, Basic Programmers' Toolkit, Bodywise, ColourFun, Draw_Changer, Keystroke 3, TableMate 3, Magic Pockets, Maths Circus, Navigator, Number Tiles, Personal Accounts v3, Pinpoint Datafiles, ScreenTurtle, SmartDTP, Impression Style, The Spoken Word, Tekkie CD, Virtual Golf Augusta Course, Z-Link II,

ncs 

NORWICH COMPUTER SERVICES

Acorn launches out on the Information Super-highway!

As you can see from the press release on page 2, Acorn are making the most of their leading-edge ARM technology together with their knowledge of multimedia, to launch out into the world of Interactive Multimedia on the Information Super-highway. At a press event on 6th July, Acorn demonstrated a set-top box which, once the services are established, could give access to on-line shopping, video-on-demand, audio-on-demand, TV program pre-viewing, educational services, etc, etc – the list is potentially endless.

During a private demonstration of the system, at the click of a button, the IMM main menu suddenly turned into the familiar RISC OS desktop! In other words, Acorn are using their existing prowess in hardware and software and applying it to a big (potentially VERY big) consumer market. Existing Acorn software houses – especially those with educational expertise – will have a head start as potential service providers, once this project takes off.

They are also implying that it will be possible to adapt an existing ARM computer to double as a set-top box? So if people want to buy a computer for, say DTP, that can also run DOS and Windows software *and* double as a set-top box, the Risc PC must be at the head of the field.

The future of Acorn Computers is getting more interesting by the month! And, as always, we'll try at Archive to bring you the latest developments as they happen.

Happy reading!

Paul Beverley

Government Health Warning – Reading this could seriously affect your spiritual health.

"I don't agree with you... but I like to see what you have to say in your God-slot each month." From the letters I receive, it seems that many of you feel like that and I have found just the thing for you...

Hundreds of churches of different denominations, all over the UK, are running "Alpha Courses" and thousands of people are attending them. They are proving so popular that one church in London has 500 people on the course it is running at the moment.

So what is Alpha? It's a 10-week course designed to give you the opportunity to find out about the Christian faith in a relaxed and friendly atmosphere. The following acronym should give the flavour of Alpha:

Anyme can attend – You can be atheistic, agnostic, antagonistic, apathetic – whatever – you'll be welcome.

Learning and **L**aughter – There is teaching and discussion about Christianity but it is good fun too.

Pizza and **P**udding – (or Pasty and Peas or whatever you eat in your part of the UK) i.e. it includes a meal.

Helping one another – People who come on the courses often end up firm friends.

Ask **A**nthing – For those who attend, this is a no-holds barred course. You can ask *any* questions you like.

Although it's a 10-week course, there is absolutely no pressure to complete it. The people who run the courses make an undertaking that they will never "chase" anyone who drops out. If you choose to stop coming to the meetings at any stage, that's entirely up to you. This isn't some new cult – it's just ordinary run-of-the-mill local church members trying to share honestly and openly what they believe – the same as I try to do here month by month.

If you want more information, ring the Alpha Helpline on 0603-765073 or ring Holy Trinity, Brompton on 081-581-8255, either of whom will be able to tell you if any church is running an Alpha Course near you.

Why not investigate and see what you think? You have nothing to lose!

P.B.

Archive

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Archive magazine is
edited by
Paul Beverley
and published by
Norwich Computer
Services.

96a Vauxhall Street,
Norwich, NR2 2SD.

Telephone:
0603-766592
Fax:
0603-764011

Acorn Computers – A Major Announcement

Acorn Computers Ltd has just announced plans to exploit the emerging interactive multimedia marketplace, working in partnership with its newly launched sister organisation **Online Media**. Online Media has been set up to develop the use of Acorn's technology to allow the Acorn Computer Group to expand into this new and emerging market. Acorn will bring its unique understanding of education and its established market leadership to the partnership.

"Acorn has always been recognised as a technology innovator," comments Sam Wauchope, MD of the Acorn Computer Group. "We demonstrated this with the launch of the first 32-bit RISC computer in 1987 and have done so again with the Risc PC earlier this year. We now believe that the time is right and the market is ready for the multimedia technologies that Online Media will deliver."

Acorn Computers Ltd will enable Online Media to capitalise on its expertise and technology to deliver effective solutions to the **set top box** and related service markets. The partnership will be further strengthened by Acorn's unique understanding of the education market, ensuring that Acorn fully exploits these emerging technologies to make products available to both educational establishments and to home education markets.

Peter Talbot, General Manager UK Education at Acorn Computers, comments: "Acorn has today announced its plans to realise the enormous potential of **interactive multimedia** and we believe Acorn is in the strongest position to ensure that education gets the best from this innovative technology.

"Acorn has undertaken the challenge to work with Online Media to develop a complementary environment and systems which will allow schools to use their current multimedia solutions with future products. In the future, education will benefit from new products and technologies from both Acorn and Online Media."

Acorn Computers Ltd will continue its own development plans whilst working closely with Online Media to integrate both companies' technologies to exploit opportunities in their respective markets. Online Media will provide Acorn with significant product enhancements and the run time environment and interfacing cards to allow Acorn computer systems to be connected to interactive services.

The partnership will also provide Acorn Computers with a range of capabilities including multimedia authoring tools, MPEG video support, a range of

Archive Monthly Program Disc Contents

- Programs from James Riden's article on assembly language programming
- Text from the !Products application showing Risc PC software and hardware compatibility
- Some Keystroke definitions (Jonathan Cox)
- A small application to test if the caret is currently set (Jonathan Cox)
- A !Style template document for creating tape inlays (Jonathan Cox)
- Glossary, latest version – It has now reached over 9,000 words and is still growing. Please keep sending us words and acronyms that you want defining. Just because we have put it in printed form (see page 33) doesn't stop it growing and becoming even more useful.
- Maths Card – A fully working version (apart from saving) of Creative Curriculum Software's application to help teachers produce well laid out maths question sheets.

alternative network service protocols and set top boxes. It will also provide increased opportunities for Acorn's existing developers and potential new Acorn partners.

Sam Wauchope continues: "Acorn's philosophy of identifying and working with partners to exploit technologies has enabled us to remain successful in

our major markets. We have shown this through creative exploitation of technology with another Acorn sister company Advanced RISC Machines Ltd. This philosophy has been fundamental to the success of ARM, which is rapidly becoming the global RISC standard for consumer applications, and will continue to ensure the success of Online Media." **A**

Products Available

• **105Mb removable hard drives** – We have made a special purchase of a number of 105Mb removable drives which can be used for A5000 or Risc PC. These are brand new, fully guaranteed drives but are only £270 (normal price £340) including fitting kit and including one cartridge – while stocks last! Please ring the NCS office to book one rather than just sending a cheque.

• **270Mb removable hard drives** – We can now get the IDE version of the 270Mb removables. There are internal versions for both the A5000 and the Risc PC and each is £490. This includes fitting kit and one cartridge. Extra cartridges are £90 each.

• **Acorn standard resolution monitors** – The AKF30 and the AKF40 are now out of production. There are some stocks left but they may have all gone by the time you read this. The AKF52 multi-sync is now the minimum standard (VGA) monitor that Acorn supply.

• **Acorn Enthusiasts' Scheme** – Acorn have agreed to allow "Enthusiasts", who have a special reason for doing so, to order a Risc PC without a monitor at £294 off the full with-monitor price. To do this, you must first fill in a special form giving details of your reasons for wanting a computer without a monitor and to register as an Acorn Enthusiast. Acorn say that Enthusiasts will be given 'priority information' and that there may be 'special offers' and 'limited edition literature' available to them. These special forms are available from the NCS offices.

If you want to register as enthusiast even though you don't want a monitor-less Risc PC, we can send you a form if you send us an SAE.

• **Apollonius PDT** – Oak Solutions have announced a fully parametric CAD package, allowing the user to specify relationships between elements in the drawing so that any change updates all the elements automatically. It also features an 'intelligent' toolbar which provides a large number of features based on eight basic tools, which vary in precise function according to context. The price is £150 +VAT from Oak Solutions or £165 through Archive. (£75 +VAT as an upgrade from Oak Solutions' Parametric Design Tool).

• **Calendar** – Kudlian Soft have released Calendar, a package intended for primary education with the purpose of producing wall calendars. It is intended to be very easy to use, with a WYSIWYG display, and uses the RISC OS outline fonts and printer drivers to produce high quality results in several formats. It also allows pupils to include their own pictures. The pack costs £25 +VAT including a site licence for primary schools, or £40 +VAT for secondary schools.

• **Calligraph A4-1200** – Following on from their high resolution A3 printer, Calligraph have released a direct drive, A4, 8ppm laser printer capable of true 600 x 600 dpi resolution and up to 1200 dpi horizontal resolution through software enhancement. The software provided can handle variable screen density and gamma correction, as well as a draft printing mode and OPI-like virtual sprites (which leave large scans on disc until print time). The A4-1200 can be driven entirely from the computer, including all status and menu option information which would normally be on the printer itself. It also emulates an Epson FX80. The single bin version is available at

£999 +VAT, and the dual bin version is £1149 +VAT (£1140 and £1315 through Archive).

- **CD-ROM for Risc PC** – Cumana are now selling an IDE CD-ROM 300iA drive for Risc PC. It is a caddy-less drive (i.e. you cannot operate the computer in tower mode as the discs will fall off the tray!) but the drive comes complete with an audio mixer so that the CD-ROM sound can be combined with the computer's own sound and output through the computer's own sound socket. Also included are the ProArtisan 2 Clipart CD and a PhotoCD disc with sample pictures. The price is £249 +VAT + carriage from Cumana or £290 through Archive.
- **CD-ROM for Risc PC** – Morley Electronics have two internal CD-ROMs for the Risc PC, both SCSI devices. The 4101 is a caddy-less version (i.e. you cannot operate the computer in tower mode as the discs will fall off the tray!) and costs £249 +VAT + carriage from Morley or £290 through Archive. The 3401 has a caddy and is slightly faster than the 4101 (330 Kb/s cf 300 Kb/s) and costs £349 +VAT + carriage from Morley or £400 through Archive. (Both require SCSI interfaces, e.g. the Morley uncached SCSI card at £160 through Archive.)
- **Classcardz** – Colton software have launched resource packs which take the user through the first steps in document processing and creation of spreadsheets with the company's popular programs Wordz and Resultz. The packs are £20 each from Colton, and consist of sets of A4 laminated cards which can be photocopied for classroom use.
- **Colton Software price drop** – Colton have announced some price reductions on the 'z family' of programs: Wordz is now £59 +VAT (£64 through Archive), Resultz has been reduced from £99 to £79 +VAT, (£88 through Archive) and Fireworkz has been reduced from £149 to £99 +VAT (£110 through Archive), with site licences discount also available from Colton Software.
- **Commodore64 conversions** – XL.C.US Software are planning to provide a picture and sound sample transfer service between Archimedes and Commodore 64 machines. For details, contact Jonathan Hunt at 21 Green Street, Milton Malsor, Northampton, NN7 3AT.
- **Design Processor update** – Oak Solutions are working on a new version of their Design Processor to be packaged with OakPCB, DrawPlot, Genesis Professional and Apollonius PDT, due out in September. The new version will be £1200 (it used to be £900) for a site licence and regular upgrades but the price increase will not affect existing users or those who purchase Design Processor before September.
- **First Page** – Longman Logotron have released a new easy-to-use DTP package. First Page is capable of multiple columns, headlines and captions, and can import PenDown and PenDown Plus files maintaining layout and styles. In addition, it has its own basic word processing facilities. Illustrations can be included both as separate images and as frame backgrounds. FirstPage costs £49 +VAT for a single user or £140 and £190 +VAT respectively for primary and secondary site licences. The Archive prices are £54, £155 and £208 respectively.
- **Flashback** – This new release from US Gold is another port from the Amiga/PC markets. It is a graphic adventure, which was widely acclaimed for the innovative techniques used in production. The character animation was produced by filming athletes, to give very accurate movement – the character you play has 681 animation frames to himself. The plot involves having your memory wiped after your latest invention identifies the presence of hostile aliens on Earth. All you have to help you is a message from yourself, explaining what has happened, and then it is up to you to explore. Sections of the game are linked with "Cine Sequences" which are short, non-interactive sections to add to the feel of the game.
- **HQ Tracker** – Mycroft Software have released a low-cost alternative to SoundTracker, based around their PlayModule relocatable module and intended for use in adding sound effects and music to users' software. The system is intended to be more extendable than its competitors, and comes with a converter for soundtracker files. HQ-Tracker is £25 from Mycroft Software with a special price of £20 to people who mention Archive when ordering.
- **Idek Iiyama monitors** – These new monitors are now available in both 17" and 21" sizes. The

Some suggested monitors for use with the Risc PC

Manufacturer	Acorn	Acorn	Idek	Taxan	Idek
Monitor	AKF60	AKF85	MF-8617	1095LR	MF-8621
Size	14"	17"	17" FST	20" Trinitron	21" FST
Dot pitch	0.28mm	0.27mm	0.26mm	0.30mm	0.26mm
ARF*	50	63	65	67	81
Scan frequency:					
Horizontal	30-50kHz	30-82kHz	23.5-86kHz	30-80kHz	25-85kHz
Vertical	40-90Hz	50-120Hz	50-120Hz	50-120Hz	50-120Hz
Programmable	No	Yes	Yes	Yes	Yes
Weight	12.5kg	21kg	21kg	36kg	36kg
Price	n/a	n/a	£734	£1995	£2144
Price with Risc PC	included	£470	£440	£1700	£1850

* ARF = 'Archive Resolution Factor' = (size in inches) / (dot pitch in mm)!! This is only intended to give some way of measuring the relative resolutions of these monitors and is not part of the official specifications.

prices are £734 (£440 with Risc PC) and £2144 (£1850 with Risc PC) respectively. As you can see from the specifications opposite, the 17" monitor is a slightly higher specification than the Acorn 17" monitor and it works out slightly cheaper provided you class as an Acorn Enthusiast (see above). Our subjective view, having had the two monitors side by side is that there is little to choose between them in terms of display quality or programmability. The only real difference apart from the price is that the AKF85 comes with a 12-month on-site warranty whereas the Idek monitor has a three-year return-to-base warranty, i.e. it's guaranteed for three years but you have to pay to get it shipped back to Idek – they fix it and send it back to you.

As regards the 21", we are *very* impressed with this one. It is, in our view, better than the Eizo F780iW costing several hundred pounds more! It has a very easy-to-use control tray that slides out from the front of the monitor and allows you to adjust all the various parameters and save that particular mode definition. The 20" Taxan doesn't have quite such good definition but it has the advantage of being a Trinitron tube and yet is £150 cheaper.

(As soon as I can afford it, I shall be buying an Idek 21" and a Risc PC. This will make production of Archive an order of magnitude easier. Ed.)

• **IFEL 8Mb RAM upgrades** – A5000 and A3000 machines may now be upgraded to 8Mb by means of a new upgrade from IFEL, for £259 +VAT for the A5000 or £249 +VAT for the A3000. However, IFEL recommend their fitting service (£50 +VAT for 4Mb machines) since the upgrade requires removing the surface-mounted MEMC. A300 and A400 series upgrades will follow.

• **ImageFS** is a RISC OS 3 image filing system (similar to that used for PC partitions) which allows transparent loading of a number of image formats RISC OS-legally – including TIFF, BMP and PICT. The images are converted to sprites on the fly, and the software supports deep sprites and a number of dithering options. ImageFS is available for £34.95 +VAT from Alternative Publishing Ltd.

• **Landmarks** – Microworld Invasion and Pinpoint Datafile – Britain since the 1930s are new educational programs from Longman Logotron aimed at 9-13 year-olds. They are designed to complement the BBC's Landmarks history series to be broadcast in Autumn 1994. Prices are £24.95 +VAT and £12 +VAT from Longman Logotron (£27 and £13 respectively through Archive), with versions for the IBM PC and site licences also available.

• **Lark** – Wild Vision's 16-bit audio sampling and play-back card for all the Acorn machines is now

available. It can sample and playback in stereo and sample up to 48kHz, and features MIDI connection and on-board filtering. The Lark A16 is £199 +VAT + carriage or £225 through Archive.

- **Lenses & Light** is a pack from Anglia Television for the Key Plus database and the Key Calc spreadsheet. It covers eye testing, shadows, polarisation, single and double lenses, microscopes and telescopes with background information and worksheets for photocopying provided. Lenses & Light costs £22 +VAT from Anglia Television.

- **Premier Manager** – Gremlin Graphics Ltd, the makers of Zool, have released a game for those who prefer their football as most of us get to see it: from the sidelines. Starting in the Vauxhall Conference League, up to four players can simultaneously work on their teams, investing their money on the grounds and their players in the hopes of bringing in the sponsors and the fans. The game features five divisions, cup competitions, match highlights, full ground sponsorship, complete results service, weekly fax data on match reports, transfer news and player information and complete interaction with other team managers. Available for £25.99 from Gremlin or £24 through Archive.

- **Sound FX #2** – Alpine Software have released another disc of sound effects for Creator, Creator II or UltraSonic. The effects are grouped under the headings of VOCAL_1, VOCAL_2, TREK, WeirdFX and Weapons. The disc is £5 from Alpine Software.

- **Tekkie CD** – Emerald Publishing have produced a CD that contains the RISC OS 3 PRMs. Not only that, but it also contains the Style Guide, Basic Guide, Desktop C, Assembler and DDE guides, all for the same price as the paper version of the PRMs – £99 +VAT. (See the review on page 61.)

Review software received...

We have received review copies of the following:

- Beethoven Browser Egmont (e), •Calendar (e), •Equate (e), •HQ-Tracker (u), •Langdale River Project (e), •Lenses & Light (e), •Report Writer (e).

e=Education, b=Business, bk=Book, g=Game, h=Hardware, l=Language, u=Utility, a=Art.

If you would like to review any of these products, please contact the Archive office. Potential reviewers will need to show that they would use the product in a professional capacity or that they have some knowledge of the particular field. **A**



CLIP ART VOLUME ONE

At last, quality artwork for use with Impression and other DTP packages. Fully compatible with all Archimedes computers, all clip art is supplied in sprite format. Volume One has 68 full size sprites and 29 system icons, compressed with ArcFS. Themes covered include: Animals, Borders, Christmas, Furniture and Transport. Send £10 (+50p p&p) for your copy or 75p for a thumbnail printout of the contents. This is redeemable against purchase of Volume One.

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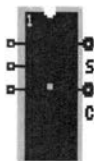
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- Dialogue based - no wading through menus!
- Used by professional RISC OS developers



**“ [RiscView] does everything I could want a template editor to do...
...the template editor I've waiting ages for...”**

Acorn User
June 1994

RiscView saves and loads standard template files. RiscView Professional also supports its own file format, which can store style information and sprites. You can upgrade for the difference in price at any time.
Send £1 for a demonstration disc. If you order RiscView and decide it is unsuitable, you may return it for a full refund

To order RiscView, send a cheque or postal order for £9 (RiscView) or £29 (RiscView Professional) to:
Simon Glass Software, PO Box 834, Landbeach, Cambridge, CB4 4DG

Does your writing have style ?

Impression Style is the newest word processor member of the Impression family - a major update over earlier versions, with special attention paid towards improving the word processing abilities still further, and making it even easier to use than before. So, for example, it now includes automatic paragraph numbering, two sorts of on-line help amongst dozens of other improvements.

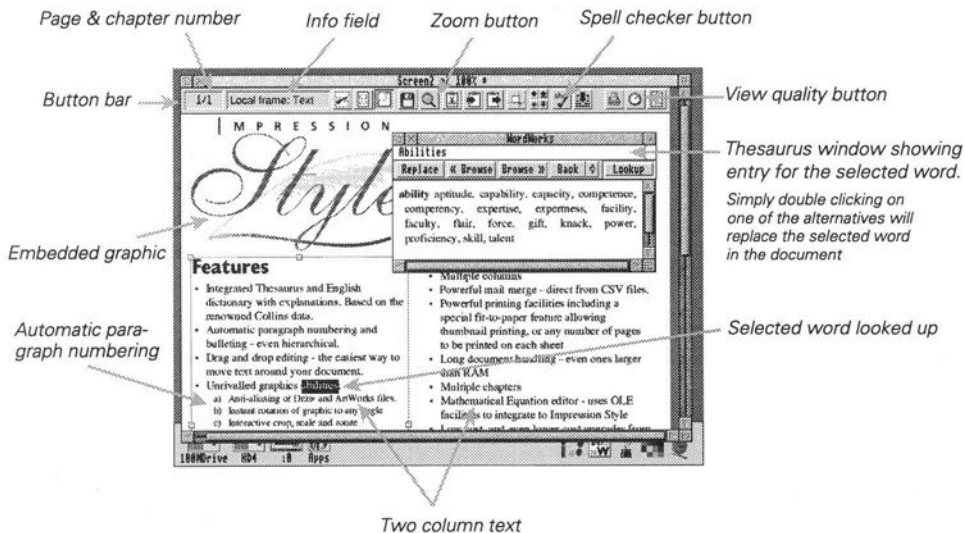
For those with technical writing needs it includes a mathematical equation editing utility and table building utility. For writers it includes the WordWorks dictionary and thesaurus package. Other features that help make Impression Style a better text processor include automatic

abbreviation expansion, drag and drop editing, an optional, configurable tool bar, along with firm favourites such as spell check as you type.

And for those who need complete control over the page layout and appearance, Style offers a comprehensive set of DTP features.

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Style



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Times Educational Supplement

£99 + VAT (£116.32 inc)

2Mbytes RAM and a hard disc recommended.
A full specification, including details of upgrade offers, is available on request.



Computer Concepts Ltd

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Hints and Tips

• **Dongled software on the PC card** – When running dongle-protected PC software on the Aleph One PC card, some problems may be experienced where the dongle isn't seen. This can be cured by a simple hardware upgrade to the parallel port. Contact Aleph One for details. W H Bradbury.

• **ImpChars on the Risc PC** – ImpChars, included on Archive program disc 7.6, doesn't work with the Risc PC. The error "Too many nested structures" appears. This can be solved by changing the value of the WimpSlot in the !Run file eg. from 24 to 45. Anon.

• **Maximising memory using Keystroke** – I have used Keystroke for a year or so and I am now using v2.33. The most commonly used sequence I have is on booting up. My !Boot file includes the line

```
/ADFS::IDEDisc.$.!Keystroke
```

My default Keystrokes file sets up <Alt-Q> to quit those applications which have been loaded during the boot sequence and which are no longer needed

(e.g. the Printer Manager). They are quit either by using the quit option from their icons menu on the iconbar or, if that is not available, from the quit task option in the Task window by opening the window, positioning the pointer over the item and quitting via the menu.

My !Boot file also contains the lines

```
Set $Do0 Alt+Q@Quit Printer Manager
Set $Do1 Alt+Q@Quit ...
Set $Do2 Alt+Q@Quit ...
Set $Do3 Alt+Q@Quit ...
Set $Do4 Alt+Q@Open Tasks Window
Set $Do5 Alt+Q@Position Tasks Window
Set $Do6 Alt+Q@Position Pointer
Set $Do7 Alt+Q@Quit (application name)
Set $Do8 Alt+Q@Close Tasks Window
```

which successfully remove those applications and leaves me in the desktop with the machine set up with all the applications and modules that I like to have loaded, but also with the maximum amount of free memory available. M P Churchill, High Wycombe. **A**

Small Ads

(Small ads for Archimedes and related products are free for subscribers but we reserve the right to publish all, part or none of the material you send, as we think fit. i.e. some people don't know what 'small' means and there are certain things, as you can imagine, that we would not be prepared to advertise as a matter of principle. Sending small ads (especially long ones!) on disc is helpful but not essential. Ed)

• **2Mb SIMM for RISC PC**, £50 o.n.o. Phone 0328-864177.

• **A3000, 2Mb RAM, RISC OS 3.11**, ext 3½" and 5¼" disc drives. Colour monitor. All boxed with manuals etc. ex cond. £450 o.n.o. Phone 0533-882528.

• **A3000, RISC OS 3.1, 4Mb, 100Mb HCCS hard card**, colour monitor and monitor stand, PD software, ex cond, £800 o.n.o. Phone 0642-472065 after 6pm.

• **A310, 4Mb RAM, MEMC1a, ARM3 (33MHz)**, RISC OS 3.1, 47Mb HD, Taxan 775 monitor, loads

software, inc PC Emulator, £800 o.n.o.. Phone John on 0328-864177.

• **A310, ARM 3, RISC OS 3.1, 4Mb RAM, 40Mb IDE hard disc (ICS interface)**, colour monitor, fan quietener, some software, plus PD, Beebug 5¼" disc interface + 40 track drive, DFS reader and 50 5¼" discs, £525 o.n.o. + p&p. Phone 0332-557751 (eves).

• **A310, monitor, 2Mb RAM, twin floppies**, Watford digitiser and Lingenuity colour converter, memory expansion will take RISC OS 3.1, £395 o.n.o. Phone 0452-417697.

• **A310, RISC OS 3.1, 4Mb, ARM3, MEMC + 20M HD**, Hifi Audio, VIDC enhancer, 4 layer back plane, Acorn I/O podule, external disc interface, Taxan 770+LR multisync, Kaga KP-810 printer, leads, manuals, software. £600 +p&p. 071-272-1027. Sensible offers considered.

- **A310 (RISC OS 3.1)**, 4Mb RAM, 2nd internal 3½" disc drive, DFS buffer/podoule, PAL TV converter, £385 o.n.o. Cub 3000 colour monitor (built in stereo sound) for £185 o.n.o. Oki wide carriage DM printer tractor/sheet/envelope feed for £65 o.n.o. Phone 0553-672841 after 6pm.
- **A410, 4Mb RAM, 35MHz ARM3, RISC OS 3.1, 47Mb HD, Colour monitor, Oak SCSI board, 5¼" FD interface**, all cables, manuals and boxes, loads of PD software and games. Bargain only £750, no offers. Phone 081-778-9166 (office hours).
- **A410, monitor**, 20Mb hard disc, RISC OS 3.1, £475 o.n.o. Phone 0452-417697.
- **A410/1, 4 Mb, ARM 3, RISC OS 3.10, External 40Mb IDE disc**, Acorn multisync (AKF18), Epson MX80 (9 pin), £750 o.n.o. Amstrad SM2400 modem, 5¼" drive and interface card, Graphbox Professional, 1st Word Plus, Logistix. Offers. Phone 0272-682108 after 7.
- **A440/1, 4Mb RAM, 47Mb HD, 25MHz ARM3, VIDC enhancer, 5¼" floppy interface, RISC OS 3.1, PC Emulator v1.8**. immac cond, all original packing, software, manuals etc, £600 o.n.o. 0924-255515.
- **A5000, 100Mb hard disc, 4Mb RAM. M/Sync monitor**, as new, with over £1000 of original software inc Lemmings, Populous, 1st Word Plus, £975 o.n.o. Phone 0268-775356.
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- **A5000, 4Mb, 100Mb HD, Std Resolution monitor £800. 100Mb Mac style external SCSI HD £200**. Contact Leslie Wiggins on 0332-204040 day or 0602-272282 eves.
- **A5000, 4Mb RAM, 40Mb HD, Eizo Multiscan monitor, RISC OS 3.11, Learning Curve software, all manuals, £1050 o.n.o.** Phone 0732-862404.
- **A5000, 4Mb RAM, 405Mb Hard disc, RISC OS 3.1, AKF18 Monitor £900**. Phone 0704-534156 evenings.
- **A5000 Fan silencer, £15**. Phone 071-703-5675.
- **A5000 Learning Curve, 4Mb RAM, 120Mb HD, lots of software. £800 for quick sale**. Phone Howard Bailey on 0202-394057.
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- **A5000, RISC OS 3.11, AKF18 monitor, 40Mb HD, 4Mb RAM, £800**. Phone Garry on 091-3771-489.
- **A540 without monitor, 8Mb RAM, 120Mb hard disc, £975**. Acorn colour monitor £100. Fax Pack £125. Phone 0272-736237.
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- **Citizen Swift 24 dot matrix printer. £80 o.n.o.** Phone 081-898-0447.
- **Conner CP3044 40Mb IDE drive ex A5000**, offers around £70. Home Office pack unused, offers around £80 to Derby 0332-701969.
- **Econet interfaces £15 each, Filestore E015 £125, AppFS software £50**. Contact Hill 0953-605566 (0953-850948 eves).
- **Eizo 9070S 16" multiscan 0.28mm dot pitch with warranty, H-scan frequency 20-50kHz, V-scan 50-80Hz, TTL or analogue RGB inputs. Offers to 0332-701969**.
- **HCCS Colour Vision Digitiser for A400 series, brand new £75**. Phone Ian on 061-476-0229.
- **System Delta Plus, £35**. Phone Peter on 0924-862602.
- **WordWorks £20, PC Emulator 1.8 £30, Artisan 2 £10, HP Printer Drivers £10, Artisan Support Disc £5, AlphaBase £10, Sporting Triangles £5, Blowpipe £10, The Last Days Of Doom £5, Avon £5, EMR Soundsynth £15, Corruption £10, Nevr-on £10, Rotor £10, Wherewith The Clues £10,**

Desktop Games £10, Hoverbod £5, Orion £5, Repton 3 £5, Terramex £5, Inertia £5, Quazar £5, Alerion £5, Conqueror £5, Zarch £5, Word Up Word Down £5, Startrader £5, Thundermonk £5, Ancestry £10, Drop Ship £10, Desktop Thesaurus £5, Holed Out Compendium £10, Gods £10, Archway2 £25. Phone 0442-822875 6pm-9pm weekdays.

Charity Sales

The following items are available for sale in aid of charity. PLEASE do not just send money – ring us on 0603-766592 to check if the items are still available. Thank you.

Software: First Word Plus £9, Genesis £5, Genesis Plus £20, PC Emulator 1.7 £20, Pacmania £5,

Leading Edge Midi Tracker £15, Bubble Fair £2, Quest for Gold £2, Fireball II £5, Spellmaster £5, Landbuild £5, Ancient Egypt clipart £3, Blaston £2, Pysanki £3, Blowpipe £3, Zelanites £3, Rotor £3, Man United Europe £5, Apocalypse £5.

Hardware: 40Mb IDE drive £35, A3000 1Mb RAM £25, Cumana 40/80 external 5¼" floppy drive £30, WE external disc interface (for A400/1 and earlier) £9, Quest trackerball £15, Z88 + p.s.u. £40.

(If you have unwanted software or hardware for Archimedes computers that you could donate in aid of charity, please send it to the Archive office. If you have larger items where post would be expensive, just send us details of the item(s) and how the purchaser can get hold of them.) **A**

Bodywise

Nick Harris

Bodywise is an "annotated pictorial database" of the human body packaged in a neat A5 plastic folder. It consists of a key disc (software protection) and two data discs (the second data disc is only required when you are printing or saving with empty labels!) with two 16-page A5 manuals – the "Bodywise User Guide" and "Using Bodywise in the Classroom". In addition, there are two differentiated sets of activity cards with answers, six double-sided A4 fact sheets covering: The Skeleton, Hormones, Genetics, Food, Drugs and Aids plus an A4 skeleton sheet and a simple A3 promotional poster. Sherston are now shipping v1.03, so Bodywise will run on all Archimedes and on the Risc PC. It can be installed on to a hard disc but will still require the key disc to run. Site licence holders will be provided with an unprotected key disc. It will require virtually all the memory on a 1Mb machine but if you load and then 'quit' the printer driver before loading Bodywise, you can still do printouts.

The user guide, which includes tutorial, is both clear and concise. It deals with loading and using the software in a straightforward manner and the tutorial takes the user through the Bodywise database with simple clicks on relevant buttons. "Using

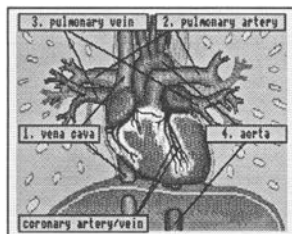
Bodywise in the Classroom" has suggestions for using printouts from Bodywise in the classroom and also many suggestions for use in lessons across the full range of the curriculum. It mentions various useful books with authors and publishers and addresses of charities and institutions who could supply additional material for the lesson suggestions.

Within the application, the illustrations are compressed using the "Squish" method (Archive 7.2 p54) whereby a sprite is converted into one long strip. This allows a huge amount of pictorial information to be stored on three ordinary 800Kb discs. Bodywise allows you to save or print any one of the many complete pictures, cross sections, diagrams or frames from the animations in colour or black and white outlines, with full text labels or with blank labels. Text can also be saved out and edited so that you can prepare teaching materials to your own specifications. The saving out function works very well, in that, not only does it remember the path name from save to save, but it actually alters the filename for you for each sprite or text area. The quality of each saved sprite is shown in the clarity of the examples here.

The Bodywise database covers eight main body systems: musculo-skeletal, nervous, blood and

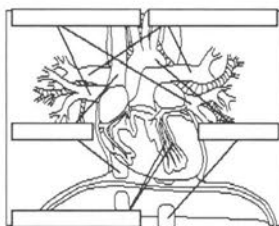
lymph, respiratory, digestive, excretory, endocrine and reproductive. A choice may be made between male and female, which is only required for the endocrine and reproductive systems. When a single System is selected, it is accurately superimposed with its labels, on a human figure. You can also show more than one system at a time but then, no labels are shown. The view can be magnified to twice the size but remember that these are sprites, so too great a magnification is a hindrance. Selecting a label opens up further windows showing text and/or labelled details. Again selections may be made to show further information, cross sections, close ups and/or animations of which there are several. For example, the cutaway diagram of the heart (shown above), when animated, shows the circulation of the blood as arrows and then switches to show 'pulses' of blood plus sound effects!

The teacher can set Bodywise to show one, some or all of the systems and a choice can be made between simple or greater depth for the labels and text – see “the heart and its position” above. The reproductive system has password protection to prevent unwanted animations of “making a baby!” This covers all the stages and ends with the foetus in the womb. The database can be configured to display selected individual organs from any body system in any combination but, of course, if you show the ‘skin’ you can see nothing inside! (My only criticism of the package is the colour of the skin which is sadly still Zombie grey even at 16.7 million colours!)



The heart

The heart is made of special muscle. It is the pump which pushes blood around the body in arteries and veins.



For revision, testing or for fun, the database can be set up for “Placing of the Parts” which tests the accuracy of the students’ positioning of up to eight named parts. These can be chosen at random by Bodywise or selected by the teacher. Bodywise will score the accuracy of the placement so that there can be an element of competitive testing.

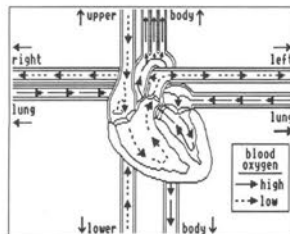
The more I investigate this package, the more impressed I become. The Head of Science took one look and asked to use it with a class next lesson! I have used it with a general group who all found the package easy to use.

Students from Key Stage 2 right through to the bottom of Key Stage 4 will find the speed, ease and simplicity with which it presents a considerable amount of information amazing. I think it is also important to stress that the excellent Saving Out facilities allow Bodywise to be used as a data resource for further IT work for students. For the teacher, Bodywise also represents a wealth of ready-made work sheets, fact sheets and clipart of good quality. Sherston Software offer a 28 day approval service and I think most schools would do well to investigate Bodywise further for it has a great deal to offer.

Bodywise from Sherston Software costs £35.95 +VAT or £44 through Archive for a single user version. A primary site licence costs £79.90 +VAT and a secondary site licence is £119.85 +VAT from Sherston. **A**

The heart's position

The heart sits on the diaphragm, between the lungs and behind the rib cage. It receives blood from and pumps blood to the lungs and rest of the body.



ScanLight Video 256

Combined scanner and video digitiser

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Software

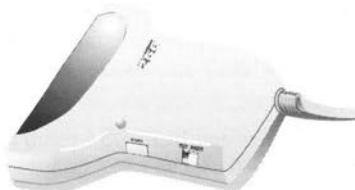
- Ultra fast 'TakeOne' video preview application provides live video in a window on the desktop - up to 50 frames a second at quarter screen size.
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- Saves images as 256 grey level sprites - suitable for practically all RISC OS software.
- All software fully RISC OS compliant and fully RISC OS 2 and RISC OS 3 compatible.

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GreyHawk greyscale digitiser £99 + VAT (£116.32 inc)

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Computer Concepts Ltd

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Help!!!!

• **Internet** – I am trying to connect my A5000 to the Internet via a Worldport 14400 fax/data modem and a dial up connection to Demon Internet. The software I am presently struggling with (KA9Q and !TCP/IP) is an adaptation of an adaptation with all that implies. I would be grateful for help and advice from anyone who has managed to get this software up and running, or who can direct me towards something better. Nigel Pauli, 081-866-6242.

• **Printer help** – (This is actually help needed for a BBC computer user.) Back in about 1987, we wrote a program for a gentleman who was using Wordwise Plus to print certain special Serbo-croat characters onto a Star NL10 (Epson compatible). It was a machine code program that interrupted the printer output stream so that when certain special characters appeared, it sent out a combination of other characters, accents, back-spaces etc to generate the Serbo-croat characters. Mr Sidor has bought a Canon BJ200 and cannot get the program to work. Presumably, the printer uses different codes. On a commercial basis, this might cost tens or even hundreds of pounds. Is there any helpful person out there who would be prepared to try to help Mr Sidor – perhaps on an expenses-only basis? If so, do get in touch with him at 90 Mostyn Road, London, SW19 3LP. (081-542-5604)

• **PostScript printing** – I have a “budget” PostScript printer (DEClaser 1152) which I have been successfully using with the Acorn printer drivers. However, it takes forever to print scanned images, which must be a real problem for PostScript typesetters too. A colleague converted one of my print files to PostScript Level II and I found that it reduced the print time by a factor of almost three. He also assures me that this could be improved if the Level I file were better organised! This begs the question of how to generate Level II PostScript files, from Impression for example. Or is there another way to significantly reduce the time it takes to print PostScript files? Any ideas? Richard Readings, 4 Arthur Road, Wokingham, RG11 2SX.

• **Publisher and RISC OS 2 printer drivers** – We use an A5000 with an LBP4 printer driven by either

CC's RISC OS 2 driver or the upgraded RISC OS 3 version. The RISC OS 3 version gives frequent problems with multi-page documents returning a “Bad Compression ID filed” error. CC say that this is a known error and that they are working on it and in the meantime to use the old RISC OS 2 driver.

Now that we have upgraded Impression 2 to Publisher, it has not been possible to print documents containing some graphics that were OK with the old printer driver – it won't print the graphics from scans etc. Using the newer version of the printer software causes the original problem.

I feel a little fed up with this – we already have an expensive Qume printer sitting doing nothing because it is incompatible with RISC OS 3 and the LBP4 setup is still causing problems.

I would be grateful for any help that can be offered on this – has anyone solved similar problems, and does the Qume printer have any use – or should it go on the tip? Peter Clarke, Warwickshire.

• **Psion Link** – Has anyone written the equivalent of the A-Link software that I can use for the Psion 3a? I have a serial connector and can use a comms package to get files across to my A5000 so I don't want to buy a complete A-Link just to get the software. Any ideas, anyone? P J Holman, London.

• **Science teacher** in Preparatory school 8–13 age range (equivalent to Key Stages 2 & 3) seeks Acorn compatible information sources and contact with others working in this field. M Halmarack, Green-side, Upper Green Road, St Helens, Isle of Wight, PO33 1UX. (0983-874090)

• **Turbo Drivers and !Printers 1.22** – Has anyone successfully managed to get the latest Turbo Driver v3.05g to work properly with !Printers v1.22 without running Artworks or Publisher first. I have tried DPatch from June Archive and it only prints out a few lines before coming up with “printer not on line” error. It even crashed Publisher while printing with “Hardware Key not found” error.

My computer is a 4Mb A3000, Cumana Emu board with SCSI drive, VIDC enhancer. Please ring Brian on 0730-812341 ext 5059 evenings. **A**

DTP Column – Style Review

Neil Whiteley-Bolton

Impression Style was launched by CC at Acorn World last Autumn, and although it was advertised as a word-processor, it is in fact a fully featured 'page make-up' program, having all of the functionality of Impression II and more!

On the assumption that nearly all Archive readers will have some experience of Impression II, I have limited this review of Style to a discussion of the differences between it and Impression II. I have done this so that I can fully describe the new features which I considered most important.

The toolbar

The most obvious difference between Impression Style and Impression II is the toolbar which appears whenever a document has the input focus. Toolbars are not new and, to the best of my knowledge, every Windows-based wordprocessor now comes complete with toolbar. CC might therefore be accused of bowing to market pressure, but their toolbar has been very thoughtfully designed rather than added as an after-thought.

The toolbar provides access to the most frequently used facilities such as print, save, alter and create frames and control frame stacking, set up and apply text effects and styles and alter view options. Interestingly, the toolbar is also interactive – it provides information about the styles and effects currently applied at the cursor position, the frame type and the position of the cursor within the document (the chapter and page number).

It is, in fact, possible to hide the toolbar. This is useful when trying to view a page at maximum size.

Text handling

Cut and Paste is now much more intuitive – simply select the area of text to be moved and drag the selection to the destination. Cutting to the clipboard is still supported, of course.

Effects

The Effects menu has a number of new options: Kerning & Tracking, Keep together and Ruler as well as Bold and Italic.

'Kerning' is only displayed when there is a cursor in the text it provides for control of the vertical spacing between two characters. 'Tracking' is available when a region of text is selected, and it controls the horizontal spacing between letters. 'Keep Together' controls how paragraphs may be split over page/linked-frame boundaries.

'Ruler' allows a local ruler which has already been applied to a region of text to be removed. (Local rulers are created by dragging out tabs and/or margins on the text ruler below the toolbar.)

The 'Bold' and 'Italic' options are discussed under Styles.

Further, a number of existing options have been altered: Line spacing can now be specified as a percentage of the text size, as well as by the old method of specifying an absolute value. The alignment options are now offered as a sub-menu of effects.

Styles

The Style dialogue has been radically altered. Four action buttons now lead to separate dialogues for Font, Text, Paragraph & Rules. The Font dialogue sets font name, font size, text colour and script – i.e. sub or super. New options exist for bold and italic (these are the extra options seen on the effects menu) and allow styles to be created which simply specify a weight without specifying a font name. Impression Style will look for (and use if found) a bold or italic weight of whichever font family name has already been applied – for example, it is now possible to create a "bold" style which does nothing but use the bold weight of whichever font is already in use, so if the style specifying the underlying font is edited, and the font family changed, this change is reflected in the 'bold' style.

The Text dialogue controls underline, strikeout with colour, hyphenation, the leadering string and now the decimal tab character, as well as the index and contents labels.

The Paragraph dialogue controls space above and below paragraph, ruler, alignment and line spacing

and the keep together – this latter now allows single paragraphs, multiple paragraphs and next paragraph to be kept together, as well as the existing keep together for a specified distance.

The Rules dialogue provides control of rule off above and below text with rule off colour and vertical rule – there is no new functionality compared with Impression II.

Finally, the main style dialogue has two other options: Show on Style Menu and a completely new one, 'Paragraph Apply'. This applies the style to whole paragraphs only and is automatically selected when paragraph-based options are selected.

Graphics handling

There are two important differences in the way Impression Style handles graphics.

Firstly, it offers support for TIFF files and for the new so called "deep" sprite format (an optional set of loaders now available from CC extends this list to include JPEG and PhotoCD files).

Secondly, we now have a graphics tool which offers no real extra functionality, but is (in my opinion at least), immensely useful because of the way it simplifies graphic manipulation. The tool appears in the selected graphics frame as two lines, meeting in the centre of the frame, and forming a slightly acute angle. There are three handles, one at the intersection of the two lines and the other two at the open ends of the lines. Moving the pointer over the handles changes the pointer shape to indicate which function the handle in question performs. The handle at the intersection, pan, allows the graphic to be moved, double clicking on this handle centres the graphic in the frame. The other handles allow for resizing (scale) and rotation (rotate). Double clicking on the scale handle sets the scale to 100%, whereas double clicking on the rotate handle sets the rotation to 0°. Simplicity itself and a joy to use!

OLE

I believe that Impression Style was the first application to support Object Linking and Embedding on the Acorn platform. OLE is a means of allowing objects created in one application to be edited when they are "embedded" in another. An example might be an Artworks file in an Impression Style graphic

frame. Ctrl double clicking anywhere in the graphic frame "fires up" the parent application (in this case Artworks – but note that Artworks must have already been seen by the filer) with the object loaded. When the object is saved, it will, by default, be saved back into the Impression Style graphics frame from which it came. All information regarding scale, rotation and offsets will be retained.

General

The menu structure is somewhat altered: Document is now called File, and the Misc menu has been replaced by View, Utilities and Help. The options previously found on the Misc menu are now split between the View and Utilities menus as is a new option to save a document as the default used by Impression on start up. View master pages is now on the view menu, as is Scale view and New View. The Help menu offers interactive help via Acorn's !Help application and detailed help via !Wordworks. Master pages can now be given meaningful names, and a "pop-up" buttons on the New and Alter chapter dialogues bring up menus of master page names for selection.

Extras

Impression Style comes bundled with a number of utilities, a font installation application originally supplied with Artworks, Equasor (CC's formulae generator), Tablemate (a table generator) and Wordworks (CC's new thesaurus and dictionary).

Conclusions

I consider Impression Style a major upgrade to Impression II. The Toolbar is particularly handy for novice users, and yet it can be switched off by expert users who use keyboard short-cuts. The graphics tool is a genuinely intuitive aid to graphics manipulation, and the support for deep sprites and foreign file formats is invaluable for high quality colour work (CC have been working very hard at improving the on-screen rendering of colour bit-mapped images and the display quality of images on screen in a 256 colour mode, even in 16 colour modes, is extremely good). Impression Style is at least as stable as Impression II, and reformatting seemed subjectively faster. Bundled as it is with such high quality utilities, it represents extremely good value for money – highly recommended. **A**

Comment Column

• **Aleph One PC cards** – In Archive 7.10 p8, I reported the apparent demise of the 50MHz PC card in our Risc PC. We should have waited for a diagnosis before going into print. Humble apologies to Aleph One! The problem was that the PC partition had got corrupted and so the PC card could not get started. The 486 was in a high dissipation state and therefore got *very* hot indeed. However, although it therefore appeared to be dead, once the PC partition was restored, it was fine.

Alex van Someren of Aleph One says: “We are confident that our PC cards do not in fact suffer the temperature instabilities described in last month’s issue of Archive. It does, however, appear that the metalisation of Risc PC card-guides can sometimes interfere with the reliable operation of these cards. This is the subject of an application note available from Aleph One.”

Once again, apologies for spreading alarm and despondency. The fact that they can survive such high temperatures just goes to show how robust they must be! Ed.

• **Archive production techniques** – *Richard Readings of Wokingham writes...* Have you ever published any details of how you produce Archive? I would be interested to know, for example, what DTP package you use and how you get from that to the final magazine. The quality is excellent and those of us who attempt to produce magazines etc on the Archimedes could probably learn a lot from your experience. Perhaps an idea for a future issue?

Ed replies... In terms of the production, there’s not much to tell. I use Impression II on an A540 with an Eizo T560iT 17" monitor and a Laser Direct LBP8. I print the magazine as 80 (plus covers) A4 sheets of paper (I use a good quality matt art paper) and give those to the printer who reduces them photographically to A5 and prints the magazine by some means best known to him! The adverts are mostly pasted in physically by the printers although some of them are DTP’ed with the main body of the magazine.

You may wonder why I’m still using Impression II. Well, I’ll change to Publisher at the same time as I

change to Risc PC so that I can make all the changes in one go. Publishing an 80-page magazine virtually single-handed every month doesn’t leave a lot of time for learning new tricks. If I now go on to explain how the magazine is *edited* as opposed to physically produced, you’ll see why.

When people send in articles, I first of all have to transfer them across from the form in which they arrive into Impression II. I then do a quick visual edit on screen, adding in any styles for headings etc, I do a spell-check (it’s amazing how few contributors check their articles before sending them in!) and then I print it out double-spaced, single column on A4 paper and read it through carefully making edits on paper as I go. I then edit the files on the computer and print them out single-spaced for Vera to read through as a final check for errors that I have missed and to try to maintain our consistency of things like “5 Mb” instead of “5Mb”, “RISC PC” instead of “Risc PC”, etc.

After the final edit, they are ready for pasting up into the magazine. On the day before the magazine is due to go to the printers, I create a list of all the adverts and articles available, noting on a spreadsheet the lengths of each. I then know how much material I have got to try to fit into the 80 pages. I note which of the articles (usually reviews) have been held over from previous months and decide which articles would give me roughly the right number of pages.

I load a standard file of the magazine, try to remember to change the date on the footers (I’ve only ever forgotten once!) and start pasting in the text and pictures. The priority I give is to get all the technical articles in as well as the regular “Columns” so they tend to be towards the front part of the magazine with the adverts which must, of course go in as booked. I then fill up with any of the less urgent reviews. I try, where possible, to start articles on a facing page and/or near the top of the non-facing page but obviously, this is a bit like fitting stones into a crazy-paving path – it can be most frustrating!

I don’t know if this insight has been of interest to anyone but when I look at the old Mac Plus with its

9" monitor, I cannot believe that I produced a (then 64-page) magazine every month on it! Ed.

• **Inkjet refilling** – May I comment on the paragraph on page 41 of the June 1994 issue of Archive relating to refilling of ink cartridges for the Canon BJC-600 colour printer?

The method I describe (see Archive 7.8 page 19) has enabled me to use the same set of cartridges repeatedly by refilling in an operation which, with experience, I find very simple – it is simple!

Anyone using this experimental technique does so at his own risk. But although it is not suitable for the inept, it can save a lot of money for the reasonably dexterous. George Foot, Oxted.

• **Keystroke** – I recently bought KeyStroke (version 2) with the intention of using it to automate the many repetitive tasks I have to perform when editing a thesis with Style. At first, the package did not live up to my expectations as I encountered a couple of problems. Principally, Style did not respond to open dialogue requests making Keystroke useless for most of the tasks I wished to perform. Another annoying problem was that Keystroke caused the caret to be lost. This meant that I had to use the mouse constantly to reselect the window I was working on after using any key sequence. Finally, the inability to set horizontal and vertical scroll bars independently made centering the Style window, e.g. after changing chapter, impossible.

I am glad to say that upgrading to version 3 of Keystroke has fixed all of my problems. (I must say I was very impressed when a member of staff rang me up on a Sunday to sort out my upgrade! – Thank you!). An additional bonus for me was a set of Keystrokes for Style.

The improvements have allowed me to automate many tasks. For example, I can compile the contents chapter of the thesis in one keypress. This includes a traditional contents together with lists of figures, tables and plates. The process takes about 50 keystrokes and includes generating both a contents and index with Style and then filtering the output with a C program. The process normally took me about 15 minutes. Creating the sequence of commands took me over an hour – but I was learning the system as I went. Other keystrokes of mine that I find particu-

larly useful are ones to print a given chapter, start Wordworks and lookup the current word, minimise memory in all the applications that are running and start Style with a given default document.

For those using Keystroke, I have a couple of hints:

When opening Style dialogues or selecting menu options, always use the manual option. This may be obvious but when I was only told that version 3 would work with Style, I didn't realise which option made it do so!

To scroll or position a Style window, drag the setting icon to the small white area that appears in the top left of the window between the page rulers. This is the only part of the main window visible. Once the keystroke is set, the page rulers can be removed and Keystroke will still find the correct window.

Keystrokes that execute *commands, can be executed conditionally by using the If .. Then construct. For example, I have a simple application that records whether or not the caret is set in a system variable. This lets me create keystrokes that will only execute when the caret is not currently in any window; that is, in a similar manner to the way hot-key shortcuts work in Menon, the application launcher.

If I have one minor niggle. I would like to have more control over the way errors in one keystroke terminate a linked sequence. In particular, I would like a way of aborting an entire sequence if some system variable is not set or if a *command fails or produces an error. Also I would like to be able to start one keystroke/action from another. Can anybody help?

Those points aside, I am now very happy with Keystroke. Jonathan Cox, Manchester.

• **Why complain?** – I've been reading the Archive magazine since the first issue, I have never made any comments until now. The thing that seems to crop up in almost every issue of the magazine is someone's view on the shortcomings of the Acorn machines. Every time a new machine is launched, you are sure to get a whole crop of people complaining about how the graphics could be improved, or why the sound system is not up to scratch.

Another reason for writing is Andrew Garrard's comments in Archive 7.10 p28. It seems to me that he expects far too much from the Risc PC. Is it not

true that the Risc PC is a very open system that is capable of adapting to the needs of almost everyone? Almost every part of the computer can be upgraded as and when the upgrades are available. It's not a case of whether Acorn could have done better but rather whether they have done their best with the technology to date. If extremely high quality graphics are needed, this can be added using the appropriate expansion card, as can sound synthesizers. If this is still not enough, why not buy a Dec Alpha or the MIPS 4400? I suspect the price of one of these would probably buy an extremely powerful Acorn machine (or two!).

If all the expectations of these people were to be built into the Risc PC, would the machine still be marketed at the same price as currently advertised? I

think that Acorn have done an exceptionally good job by producing a computer with the number of features that the Risc PC has, selling it at a price that is quite affordable.

I currently own an A410 with all the usual extras and I expect that it will be quite some time before I buy a Risc PC but I am sure it will come up to my expectations. Until then, I will continue to use my A410 and hope that Acorn don't take too much to heart some of the criticisms made about their computers. If this were to happen, it might just price it out of mine and many other people's reach. That would mean looking at the alternatives... and that really is something to complain about! Jim Simmonds, Cleveland. **A**

Recent Software Upgrades

Jim Nottingham

Keystroke Version 3

A new version of Keystroke became available around the time of the Harrogate show and, since then, has been raised to v3.04. Keystroke is available from NCS for £28 and the cost of upgrading from any version prior to v3.00 is £4.95, which includes a revised manual. The upgrade is available only from Quantum Software.

Keystroke v3.04 adds some valuable facilities which are outlined in the following paragraphs (this is not an exhaustive list).

A feature of RISC OS caused a problem with previous versions in that, although it was generally possible to open menu dialogue boxes, on occasions they stubbornly refused to stay open! The manual suggested ways of getting round this but, to say the least, it was all a bit tricky and not always satisfactory. One new feature is the "Manual" option which, when set, causes dialogue boxes to stay open, allowing the user to enter data.

A very nice touch is that a simple user-modification to Executor's !run file will now allow !Executor to be loaded but then remove its icon from the iconbar, reducing the clutter. That used to affect !Keystroke as well but this has been corrected recently so that

you can still load and control Keystroke via the iconbar menu (e.g. to modify your Keydefs) without having to revert Executor's !run file to normal.

Finally, in the Extras folder on the application disc is a very useful library of Basic programs (!KeysLib) which can be used in conjunction with Keystroke. In part, this is an extension of the EVAL function described in Archive 7.4 p17. But whereas operations allowed by EVAL are limited to applying the four basic arithmetical functions, the Basic programs in the library open the door to allowing all manner of other good things such as changing the case of text, stripping out numbers, returning current date or time or 'reading' the screen mode. Nineteen sample Basic programs are included and clever users (not me) can write and add their own.

This upgrade demonstrates the need to keep an eye on what useful programs Quantum Software often sneak in via the Extras folder and which are not always mentioned in the manual or Read_me files. The rather nice !Helper utility is a case in point.

With this upgrade, thanks mainly to the Manual option, I have finally run out of things I would ideally like Keystroke to do but which, for one reason or another, it didn't quite do before (this really is being hypocritical). In other words, Keystroke now gets an unqualified 110% from me. To

put its productivity into perspective, I now load Executor during boot-up, with 23 'standard' hot-key definitions covering DTP, scanning and common macros (e.g. entering my credit card number). To input all these functions manually, even once, would require in excess of 400 keypresses and mouse clicks – 'nuff said?

TableMate2

An earlier version of TableMate was reviewed in Archive 6.8 p59 and, since then, this invaluable table-making utility has been bundled with Impression Style and appears with Publisher. TableMate2 is now available; see the advert on page 20 of last month's magazine. The full price is £32.50 inc p&p (no VAT) from Dalriada Data Technology while the upgrade price from Impression Style is £17.50. You will need to check with Dalriada if you want a price for upgrading from other versions.

Any bugs in the new version have not stopped the program being used and, once reported, have been cleared very promptly. For me, the ability of TableMate2 to import drawfile graphics into tables, simply by dropping them into the desired cells, has proved to be a tremendous bonus and that feature alone makes it well worth the cost of the upgrade. TableMate will accept sprites but they have first to be dropped into Draw before importing to the table.

The other new and improved features of TableMate2, especially the automatic word-wrapping in columns and the complete colour control of text, data, lines and cell background, make it an extremely flexible and user-friendly facility which should satisfy all but the most exacting requirements. Although the new user-manual is a very well written booklet, I've spotted a few features and bonuses which are not documented.

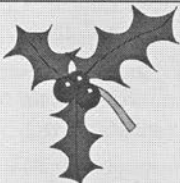
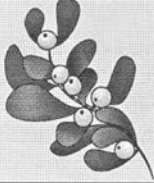
If you wish to modify an existing file, provided it has been saved as a Table, it can be re-imported into TableMate. However, if you haven't done this and the table exists only as a drawfile, the majority of elements (including text, data and most line styles) can still be modified in Draw in the normal way.

When you import drawfiles into a table, unlike DTP programs where the drawfile size is adjusted to fit a frame, the TableMate2 cell height and width is adjusted automatically to the drawfile size. So, if you

import different-sized graphics, you are going to get different cell sizes which can look very untidy. However, once the graphics have been imported, it is then possible to rescale them and/or change their aspect ratios so that everything looks balanced. An undocumented feature is that, having changed the size of a graphic in this way, it may finish up left or right-justified which, again, can look untidy. This is because its position is controlled by the column tab and, in this situation, setting the tab to Centre instead of Left/Right will recentralise the graphic.

Finally, once a graphic has been imported, you still have control over the cell background colour and this can be used to give very pleasing effects.

On the monthly disc is a drawfile ("TableMate2") illustrating the features described in the previous two paragraphs. Graphics have been rescaled/recentred and cell background colour added. **A**

Christmas Traditions		
Tradition	Description	Picture
Snowmen	Children hope that it will snow at Christmas time.	
Holly	The use of holly has its origins in pagan winter festivals.	
Christmas Tree	The Christmas Tree as we know it was introduced to this country from Germany in the 19th Century	
Mistletoe	Like holly, mistletoe was first used in pagan festivals.	

PipeLineZ

Gerald Fitton

I always believed that as the days began to lengthen in Spring you all put your computers away. It hasn't happened this year. If anything, my mail bag these last couple of months has been heavier than before April. We now refer to the size of our morning post by the number of Post Office rubber bands needed to contain it.

Anyway, thank you for all your letters and particularly for the words of praise and encouragement. However, without wishing to sound too critical, it might be a good time to repeat my request that you send me examples of your problems on a disc. An example on a disc removes ambiguities and saves me the labour of creating a disc file of data similar to that used by you. Another reminder from me: it is generally quicker to send your letters to me directly at the Abacus Training address which you will find on the inside back cover of Archive than to route them through the Archive office.

The main part of this month's article is about character printing using PipeDream printer drivers but, as usual, my remarks have a wider application. In particular, you will find some of my remarks relevant to character printing from Fireworkz and (for those of my many followers who don't have any Colton Software products) relevant to character printing from many non-Colton packages.

First let me deal with a few other topics.

Fireworkz v1.08

I have a copy! But before you rush out to post your master disc back to Colton Software, it's not what you think it is! It's true that I have version 1.08 but the copy I have runs only in Windows on an 'IBM type' PC. It is a beta test copy which I've had for a few days now and my pronouncement is that it is very close to a standard which can be released to the general public.

I have 'ported' many of my 'standard' applications from the RISC OS version of Fireworkz to the Windows version and I've had hardly any problems. I'm used to using RISC OS Fireworkz, so I found

myself using Windows Fireworkz confidently within half an hour. Indeed, I think that many of my little difficulties arose because I kept forgetting that I was in Windows and not RISC OS rather than because of differences in the way Fireworkz was working.

I've been told that the Windows version will be available in July and that the price to registered RISC OS version users is about £50! I think you have to add £13.75 for VAT and postage *and* you must quote your RISC OS Fireworkz registration number *and* you must have registered with Colton Software. Anyway, by the time you read this, at worst, the Windows version of Fireworkz will be only a few weeks away.

Help for Windows Fireworkz

I've been asked how I feel about receiving correspondence and questions about Windows Fireworkz. The quick answer is that you should feel free to write to me and I'll do what I can. For the moment at least, I shall limit what goes into Archive about the Windows version to a few lines each month. With the advent of the new RISC PC machine and the offer of a 486 board at a bargain price, perhaps the Archive Editor may become willing to accept information about Fireworkz running under Windows. We'll see. In the meantime, if you do buy the Windows version of Fireworkz and have problems, please do write to me and I'll try to help in the same way as I do with problems which arise with the RISC OS version.

Special offer prices

I have had a press release from Colton Software which includes a price list of special offers which apply until September 1994. When it comes to explaining these low prices to those of you who bought (or upgraded) earlier and explaining them to distributors such as NCS, I confess I am nonplussed to say the least. I feel as if I should apologise but it isn't my fault! Let me add that it is my impression that the prices of Colton Software products are going to remain at a much lower level than they have been in the past (typically at these "special offer" prices), even after September 1994!

Let me give you two examples. The UK price of Fireworkz for RISC OS is now £121.33 including VAT and p&p. An upgrade from PipeDream 4 to Fireworkz is £40.25 inclusive. In the past NCS, have matched prices for items like Fireworkz (to customers who would be new to Colton Software) but NCS has not operated the upgrade service from, say, PipeDream 4 to Fireworkz.

The ClassCardz that I mentioned last month are available at £25 inclusive for Wordz and the same price for Resultz.

!Printers Version 1.22

Now to my major theme for this month – character printer drivers – particularly, but not exclusively, for use with PipeDream.

What, you might wonder, has a new version of Acorn's !Printers got to do with PipeLineZ? The answer is that information contained within it may help you improve your PipeDream printer driver!

When (or rather if) you upgraded from, say, PipeDream version 4.10 to 4.13, you would expect that it wouldn't matter when you got your upgraded disc – it would be the same as everybody else's 4.13 disc. No! They weren't all the same! In particular, files which differed from time to time (all supplied under the heading of PipeDream version 4.13) included the PipeDream printer drivers. One reason for this difference (but not the only one) is the way in which the discs were upgraded by Colton Software. In order to save time in upgrading, only some of the files (such as the !RunImage file) were replaced. If you modified and then saved a PipeDream printer driver back to the Master disc then (because of the date stamp) it might not have been replaced by a later version of the PipeDream printer driver. Of course, you wouldn't notice since you didn't expect the PipeDream printer driver to be upgraded.

Again, what has !Printers to do with PipeDream printer drivers. To answer that, please bear with me and I'll start nearer to the beginning.

What is 'character printing'?

When you use an Archimedes for printing a document, your choice is between so called 'graphics printing' and 'character printing'.

When you print a document using graphic printing, the page is represented by a mass of dots. If you are using a resolution of, say, 300 × 300 dots per inch for printing then your page of approximately 8" × 11" is divided into 2400 columns by 3300 rows of dots – that's just under 8 million dots. When you print in monochrome (i.e. not colour) then each of these 8 million dot positions is either black or white and can be represented by a single binary digit (usually called a 'bit'). Each of these bits is either 'on' (for black) or 'off' (for white) and arithmetically is stored in memory as a 0 (off) or a 1 (on). In binary arithmetic 8 bits make a byte so our 8 million bits is usually referred to as 1 million bytes or 1Mb for short.

To summarise, you need to process and then send 1 Mb of dotty data to your printer if you want to print an A4 page using graphics printing!

As you might guess, graphics printing is essential for printing drawfiles and sprites. However, as you might not guess, printing using Acorn's outline fonts also uses graphics printing because the shapes of the characters are sent to the printer as graphics dots. Each printed page of outline fonts needs 1 Mb of data to be processed and transferred from computer to printer – no wonder it takes a long time to print each page.

After that slight digression, let's get back to character printing. Character printing is much quicker because a typical page (consisting of about 3000 characters) requires only one 8 bit byte per character to be sent to the printer. For each page, you need to process and then send to the printer, about 3000 bytes (usually written as 3 Kb) instead of 1 Mb, i.e. only about one three hundredth of the amount of data. This is why character printing is much quicker than graphics printing.

System font for screen display

PipeDream allows you to display on the screen either the system font or any outline font you have installed. As a general rule, you display outline fonts on screen if you are going to use graphics printing and you use the system font for your screen display if you are going to use character printing.

To see which font you are using, hold down the <Ctrl> key and tap the keys P F G, in that order. (In

future, I shall write something such as "Execute the command <ctrl-PFG>" for such a control key combination.) You should find that the system font is selected but, if not, use the arrows to move to the top of the font table to find it and click on the word System. If you are one of the many with RISC OS 3, you may find that you have a choice of weights which include (None), Fixed and Medium. Only the first, (None), is a true character font (called a BBC font for historical reasons – Acorn built the BBC Computer and the Archimedes is "backwards compatible" with it); the other two, Fixed and Medium, are outline versions of the System font and, at least until you know what you're doing, you should ignore them.

The ASCII code

An 8 bit binary number is called a byte. In binary such an eight bit number is a number between 0 (usually written with leading zeros as 00000000) and 11111111. If these binary numbers are converted to decimal they represent numbers between 0 and 255. Let me put this another way, if you want to describe the contents of one single byte of memory (you've probably got a few million bytes of RAM in your machine) then you can do so by saying that the memory location contains a number between 0 and 255 inclusive.

Look at the your keyboard and consider the following. Our alphabet has 26 lower case letters, 26 upper case letters, 10 digits (note that these are not numbers) 0 to 9 and a miscellany of punctuation symbols. In total, there are about 96 characters directly available from the keyboard (yes, I know there are a few more but let's keep it simple for now). Each of these printable characters can be coded as a number. For example, the capital letter A is coded as the number 65 and the lower case a as the number 97. This code is called the ASCII code and is used for storing text within the memory of your computer.

A <space> is stored in memory as ASCII code 32. ASCII codes below 32 are reserved for printer instructions, for example, ASCII code 12 is an instruction to the printer to execute a form feed. In general, all the codes necessary to print a letter in

English (or should I say American) correspond to ASCII code numbers between 0 and 127.

For example, to send the word 'Gerald' to the printer, the codes stored in memory and transmitted to the printer are: 71 101 114 97 108 100. The printer will decode this six byte message and, using its internal fonts, will print the corresponding 'ASCII coded' characters. Only six bytes are required to store and to print 'Gerald'! These six bytes can be transferred from computer to printer and decoded at the printer about 300 times more quickly than the outline font (graphic) equivalent. Speed is the biggest single advantage of using character printing when compared with graphics printing.

The extended ASCII code

Up to now, I haven't said what the codes between 128 and 255 inclusive are used for. These are called 'top bit set' characters because, in binary, the first (i.e. the most significant) of the eight bits is a 1, ie 'set' to a 1 (for codes between 0 and 127, the top bit is a 0). In the so-called Latin 1 character set, one of the uses of these top bit set characters is to represent characters such as ± and accented (foreign) characters such as é ì ö or ç. The Latin 1 character set used by the Archimedes has a few extra characters more than the internationally agreed Latin 1. These extras include the 'smart quotes' " & " – the standard Latin 1 includes only 'sexless quotes' such as ".

Perhaps the most important thing to understand is that, within your computer, each character you see displayed is stored in memory as a single byte, a number between 0 and 255.

When you send a text file to your printer, every character is sent as a single byte; each byte sent corresponds to a number between 0 and 255. Having specified a character set at your printer, the printer decodes that number into a printable character and prints the character from that particular character set. If you have the Latin 1 set loaded for your screen display but you have the IBM set selected at the printer, top bit set characters won't print out as they are on the screen. Each character will print out as the character with the same code number from the IBM set!

The !Chars application

You will find a copy of this application on your PipeDream master disc or, if you have RISC OS 3, in the Apps directory.

If you double click on !Chars, it doesn't load onto the iconbar but a window will pop up containing the full 256 ASCII character set. This utility can be used to enter top bit set characters into your document. You use it by moving the pointer within the !Chars window and then clicking <select> on the character you want to appear in your document. When you click on a character in !Chars, that character will appear at the cursor as if it had been entered at the keyboard.

Alternatively, you can hold the pointer over a character and press <shift>. This executes that character in the same way as clicking on it. The trouble with this is that if you leave the pointer within the !Chars window, then whenever you press <shift>, extra characters will mysteriously be added into your text!

If you don't have !Chars maybe you have Beebug's CharSel or the PD program ImpChars, both of which are better than !Chars.

PipeDream printer drivers

It is difficult to generalise too much but here goes. So far as choosing a PipeDream printer driver is concerned, there are four kinds of printers suitable for use as character printers for the Archimedes.

The first is the daisywheel driver but daisywheel printers are so rare these days that there isn't really anything I want to say about this one.

The second is the IBM type. Generally, if you want to use these for anything other than using the IBM 'box graphics', you should configure your printer as either an Epson or HP by using an emulator. I shall say no more about IBM printers in this article.

The third type is the Epson series and emulations. Most of the earlier Epson printers do not generate the Latin 1 'foreign' characters when the top bit is set but italic versions of the English characters. For example, code 65 is an upright capital A and code 193 (i.e. 65 + 128) prints an italic *A*. Many of the Latin 1 characters can be printed but require a 'long control code sequence' to be sent to the printer.

The fourth type is the HP (Hewlett Packard) and its many emulations. Nearly all the HP emulations I have seen allow you to select either the Latin 1 or ECMA 94 character set using physical switches (of a variety of types) at the printer. Refer to your printer handbook and set the switches appropriately. Even so, because Acorn use an extended Latin 1 character set, there are a few characters such as the ligature fi (note that the f and i are joined together as one character, code 158) which are not part of the international (and hence HP) Latin 1 character set. This means that the HP printer won't print them correctly without a 'fix'.

Examining a printer driver

You may have noticed that PipeDream printer drivers have the filetype Text. However, don't double click to run it, otherwise it will load into Edit. Then, if you make changes and save the file from Edit, it won't work because you will lose all the tab/column settings.

Drag the printer driver file onto the PipeDream icon and then adjust the column widths so that you can see the contents of each column. Yes! I know it takes a bit of juggling but it's worth it. When you finally save the file, it is worth checking that you are saving in ASCII format. PipeDream remembers the format of the file it loaded so it should be set to ASCII but you never know!

The Epson printer driver

The driver most suitable for the Epson is the one called [DotMatrix]. Load it into PipeDream.

The first line executed by the printer driver is line 27 of [DotMatrix]. Before the printer starts to work on the text of your file, this command is executed. The codes ESC "@" reset the printer clearing out all stored commands so, if you have previously sent a set of codes to your printer telling it to use some fancy font then ESC "@" will negate all your efforts! The remainder of the PON string, ESC "I" 1, allows the use of seventeen of the ASCII codes between code 1 and code 31 to be used to print 'foreign' characters. These codes appear in the translation table (see below).

As I mentioned earlier, Epson computers use top bit set characters to print italic versions of the standard English character set so, to generate the top bit set

characters of the Latin 1 set, you need to 'translate' the Latin 1 ASCII code to a 'long control code string' which instructs the printer to print the appropriate character.

One of the most common problems is trying to print the £ symbol. In Latin 1, this is a top bit set character. Unfortunately, much confusion arises because you used to be able to buy keyboards where the symbol above the 3 was a £ instead of #. This was called a "UK Keyboard" and Epson (and other printer manufacturers) compensate for this keyboard translation by allowing you to set up your printer for the "UK character set". In writing the [DotMatrix] printer driver, Colton Software have used the string ESC "R" 3 to select the UK character set.

In the [DotMatrix] file, you will find the printer translation for the £ on line 64. The sequence ESC "R" 3 35 causes the Epson printer to print the £ symbol when it receives the ASCII code 163. Note that the American (USA) character set is not reinstated – that would require the sequence ESC "R" 0.

Many of the 'foreign' characters have direct translations at the printer. For example, the é (code 233 on line 133) is generated by the sequence ESC "R" 1 123 ESC "R" 3. Some 'foreign' characters have been generated by using the ESC "6" sequence to enable codes 128 to 159 (inclusive) to print them. Some 'foreign' characters such as ý (code 253 on line 154) have to be faked by adding accents using a backspace (code 8) at the printer to superimpose an accent over the 'standard' letter.

Although the heading states that the printer driver is for use with an FX80 and compatibles, some of the translations use an ESC "t" 1 sequence which I don't think is available on the FX80 but only on higher specification machines such as the LQ series. Because of this, you may find that the symbol ± (shown on line 78 of the printer driver) does not print on your Epson! Read this paragraph again and you may be able to guess why the information contained within the new !Printers might be useful (we're getting there)!

In the version of [DotMatrix] which I have, many characters are missing from the translations pro-

vided by Colton Software. For example, the ligature fi (code 158) is not translated. I think it could be faked by translating code 158 to "f" "i" so that the f and i are printed instead. Such faked translations can be added quite easily as we'll see when we look at the HP printer driver [HPJet].

If you have extended your [DotMatrix] printer driver to include faked translations for these omissions, I'm sure many PipeLineZ readers will be interested in your extended version.

Finally, I am not convinced that the strategy used by Colton Software in designing this printer driver is the 'best'. I would have preferred a strategy in which the 'basic' configuration of the printer used the standard American (USA) character set and 'slipped into' other character sets (such as the UK set) temporarily with ESC "R" 3 when necessary but returned to the USA set immediately afterwards. The strategy adopted by Colton Software is to use the UK character set and 'slip into' the USA set temporarily with ESC "R" 0 to print characters such as # with a quick return to the UK set immediately afterwards with ESC "R" 3.

If you have adopted the strategy of using the USA character set and have a suitable [Epson] Pipe-Dream printer driver then, once again, I'm sure that many PipeLineZ readers will be interested in hearing from you (either directly or via me).

The HP printer driver

In my view, Colton Software have done a much better job on this than they have with [DotMatrix]. In fairness to them, I must add that I think Hewlett Packard have done a better job of providing a consistent and useable printer control language than Epson (but you may disagree – I used to think that the Epson system was 'better')! Another general point is that it has been set up more as a page printer for cut sheet paper (e.g. A4 sheets) than for use with fan-fold paper. For example, the EP string on line 30 is set to code 12 so that an end of page instruction always feeds the cut sheet of paper out of the printer. Compare this with [DotMatrix] where the EP is missing.

The major problem people have using this printer driver is that they don't set up the switches at the printer correctly. HP printers "prioritize" the

character set above all else. ISO UK (similar to ISO 04) is a character set which is supported by the HP DeskJet (and other HP machines and their emulations) but note that it is a 7-bit character set! With it, you can't print out top bit set characters so, although UK in the title sounds tempting, don't use hardware to select that character set! I suggest (indeed I almost insist) that you select the ECMA 94 character set as your default (using the hardware switches at the printer) in order to avoid this problem.

Having said that, the PON string selects the ECMA 94 character set. ECMA 94 may be different from the basic (i.e. non-Acorn) Latin 1 set but, as yet, I've not been able to discern the difference. Please drop me a line if you do know what the difference is.

Acorn's extended Latin 1 set includes about 20 extra characters not available on most (possibly all) HP printers. These extra characters have to be faked by the [HPJet] driver using translations. The translations for the extensions start at line 50 of the printer driver. Look at line 68 and you will see that the ligature fi is translated into an f followed by an i. This type of faking could have been included in [DotMatrix] but hasn't been! You will also notice that the smart quote " (code 149) is translated into a sexless quote ' (code 149) is translated into a sexless quote ' rather than to the acute and grave accents chosen by Colton Software.

If you have any opinions or advice about this then please let me know.

A test file

With a little effort, you can create a file containing the full set of printable characters with which you can test your printer. If you are unable to create such a test file, send me a blank formatted disc, a self addressed label and, if you live in the UK, return postage. I'll send you a copy of my [CharSet] test file. When you have such a file, print it out using PipeDream printer drivers and compare it with the screen display you get for [CharSet].

If there are only a few discrepancies, it is almost certain that they will be a few of the top bit set

characters which are printed incorrectly or not at all. In the circumstances that I have outlined above (e.g. trying to print out the $\pm$ symbol with an 'old' FX80 or trying to print the ligature fi using [DotMatrix]) the problem is that your printer driver doesn't accept (or doesn't have) the translation you're trying to use. Having read this article, you may feel able to add the translations you want.

If you have major blocks of incorrect printouts, it is likely that you have set your printer hardware defaults (the printer switches) to an incorrect setting such as forcing a 7-bit character set (e.g. ISO UK) to be used instead of one which supports top bit set characters.

Back to !Printers

A wide range of printers by different manufacturers are covered in the printer definitions of the new !Printers. I have had a good look at the "Start of text job" string and at the way in which they handle the "translations" of top bit set characters. They contain a wealth of information which could be useful to PipeDream printer driver designers. For example, looking at the LQ-860 and FX-80 drivers, I find different ways of printing $\pm$ (ASCII code 177). In the LQ-860 driver, the mapping is from code 177 to 241 after including the ESC "t" 1 sequence in the "Start of text job" string. (It would be much more 'elegant' to include this string as the PON string of the corresponding PipeDream printer driver and not in the translations as Colton Software have done.) On the FX-80, the $\pm$ is 'faked' by printing a + followed by a back space and underline. What I'd like to know (not just purely for interest) is which Epson printers do have the ESC "t" 1 sequence available and which don't. Part of my curiosity is because I am having an exchange of letters about ESC "t" 1 with about half a dozen correspondents. (A name which springs instantly to mind is Charles Martin – hold on Charles, I'm calling up reinforcements from the Archive readers.)

Those of you with an HP type of printer may find the "Start of text job" string used in the new !Printers for your HP type printer makes a better PON string in your PipeDream printer driver than your existing PON string. Remember, Acorn have done a lot of work with the printer suppliers on these printer definitions – certainly more work than

Colton Software did when they put their original drivers together. Is there a message here for those of you like Sue Lindley who have had serious trouble with setting up PipeDream printer drivers for the HP 500C or the compatible Integrex ColourJet Series 2?

Any volunteers?

If you get the urge to redesign your PipeDream printer driver so that it more nearly matches your printer *and* if you use the information contained within the definitive translations supplied by Acorn as part of !Printers V 1.22 *and* if you are successful then please make your efforts available to other PipeLineZ readers by sending the modified driver (together with information about what you've done and the source of your information) to me on disc. In advance, many thanks.

In conclusion

I hope that you've been able to follow this article and that it has helped you to set up and choose a suitable printer driver for your system. However, if you still have trouble, please write to me but enclose a disc copy of the printer driver you think should work.

If you regularly use a different character set (and have that character set available as a BBC font file) and if you have PipeDream printer drivers to match, please send them to me so that I can make them available to other PipeLineZ readers.

Finally

Thanks once again for all your letters. How do I keep up with answering them all? I think the answer is that I find your problems very interesting and I really enjoy having the opportunity to be helpful. **A**

Risc PC Column

Keith Hodge

First impressions

My first and strongest impression of the Risc PC is speed! I can hardly believe the difference in speed between my old Archimedes and the Risc PC. A small idea may be gleaned from the fact that Prophet, with my medium size account file, used to take twenty eight seconds to load in mode 108 – it now takes 4.2 seconds in 1280 × 480, 32 thousand colours(!). Of course, there is no difference in speed whatever the screen resolution or colour depth in use – assuming you have some VRAM.

Initial advice to new owners

When you receive your new machine, please make sure that you make a new directory called 'backup' or other name of your choice, and copy into it the complete !Boot application. This will only take up a very small amount of the relatively huge amount of hard disc space that you will have, and more importantly, it will allow you to recover any files lost, as a result of your first attempts at configuration etc. (This advice comes from bitter experience!)

Transferring from old to new machine

I said last month that I would be transferring my 167Mb worth of data from machine to machine

using 800Kb floppy discs. I did, and there is not a lot to add, except that it took the best part of two days on and off! (I could not resist looking at the JPEG pictures in 16 million colours every so often.) If there is any faster way (serial port?), please let me know so that I can pass it on.

(Atomwide say that they have almost got the RemoteFS software working on Risc PC. This would allow you to transfer things via the serial or parallel ports very easily. Hopefully, by the time you read this, it should be available – give us a ring at the NCS office if you need a copy. Ed.)

Monitors

Paul has, quite rightly, pointed out that with the vastly enhanced resolution of the Risc PC, you should buy the largest monitor you can afford. However, it must be recognised that many of us will have to make do with our existing monitors, or try and use an ex IBM PC monitor. This will be quite a simple task for those of us with access to reference manuals for the monitor and the required skills, but for a new owner with no knowledge of such things, it may completely ruin their introduction to Acorn computing. Could I please ask everybody who produces new monitor definition scripts, to submit

them to this column so that I can assemble a compilation disc which will be available to all for the cost of the return postage.

Software compatibility

I have already received by packet radio and one letter, comments on this subject! It would appear that there are some problems in this area. I have spoken to CC myself, as my Turbo Driver for the Canon BJ230 does not work, and it will be at the end of June before the update is available. All of Colton Software's products run OK, (PipeDream v4.13, WordZ v1.07, FireWorkZ v1.07), Minerva's Multi-Store v2.00, etc, and it is starting to look as if most software which does not go in for any speed-up tricks is OK. The rest, however, are in trouble – e.g. games which use speed cheats and/or calls to the disc controller for protection.

One thing that is coming to light is that one person finds that package X works, while another says it does not. This is almost certainly because they are using different versions, so could everybody please quote the version number of the package they are using when writing. From next month, when sufficient information has arrived, I will be sending Paul a list of software status for inclusion on the monthly disc. It will be too large, I think, to be published in the magazine.

Hardware news (HCCS)

First the good news: the Ultimate micropodules plug in and go. I have my 8 bit SCSI unit in and running with the 245Mb hard disc. This had been made very simple, as Acorn provided three extra power connectors, all nicely dressed to length. The only problem I had was that they were so tidily wrapped up under the disc drive that I did not see them at first!

Now the bad news: the 16bit HCCS cards do not work. There is a hardware incompatibility which I have been advised cannot be corrected, so these units will not work on the Risc PC.

BrainSoft combined video/audio/serial card

Total failure here – my card seems to be too wide to fit in the slot, so I am now in real trouble, as one of the jobs that I do is to import images for people. I must now decide on which new digitiser to pur-

chase. This does, however, give me an opportunity to ask if anybody uses/knows of a high spec video digitiser which will accept (PAL), (Y,C), (R,G,B), + Broadcast Betacam (Y, R-Y, B-Y) signals either direct into the board, or via external adaptors. This would improve my end quality considerably if I did not have to convert down to PAL.

This brings me to a subject dear to my heart. Risc PCs are now of such a high standard in all respects, including the all-important video resolution and colour depth, that they could be used for broadcast image editing and manipulation. Are there any companies out there pushing these machines/their software to the TV companies? If not, why not?

Floppy drives

No success here either. I have made up an extended ribbon cable, with the appropriate connector for my 5¼" drive, and checked pin 1 to pin 1 etc, along the cable, but no luck. Some guidance from Acorn (Phil Colmer?), would be much appreciated here. *(We have checked this out with the Acorn tekkies and they say that the necessary select lines have not been brought out to the floppy drive connector so it is definitely not possible (as with A3010/20/4000) to fit a second floppy drive of any description without soldering onto chips on the PCB, thus voiding the warranty. Ed.)*

Qume Laser Direct

CC still say that the Qume Laser Direct printers will not work on the Risc PC. However, we are getting reports that some of them do work. Paul tells me that he has a version of the RISC OS 3 driver (printer definition file says it is: `mod_version: 291`) which works OK on some Qume printers and not on others. Send Paul a formatted floppy disc (plus a charity donation or a return envelope & stamps) if you want to try the version he has used.

Tailpiece

There are so many things I could have commented on that it would have filled the magazine. So I have tried to stick to the things that I felt would interest and/or be of use to people who have just received their machines. If there is anybody out there who is thinking of buying a Risc PC but is worried that they may have problems with software compatibility, I would be quite prepared to try software on my machine for them, to allay these fears.

Gripe of the month

The only niggle with the machine so far is that there are three spare bays in my ACB45, but no spare clips to retain the drives which will go in them. Or have I missed them like I missed the power connectors? (No, there aren't but we're trying to find out how to get hold of some. Ed.)

As usual, I can be contacted by letter at the HES address on the back page, by telephone after 7p.m. or by Packet Radio from anywhere in the world, as GW4NEI@GB7OAR.#16.GBR.EU. **A**

Risc PC supplies???!!!

We have now got ACB25 (5Mb) computers in stock – not many, admittedly, and Acorn say we won't get any more until the end of July but it means we don't have a waiting list any more for ACB25. If you want an ACB25, give us a ring to see if we have any left. (There are no AKF85 monitors at all, so it's 14" or sign on as an Acorn Enthusiast and buy an Idek.)

If you are still waiting for an ACB45 (9Mb) machine, they are coming through in dribs and drabs but there is still a longish waiting list, I'm afraid. Ed.

DRAW_Changer

Peter Jennings

DRAW_Changer, with those capital letters and the underline in its name just has to come from DEC_DATA! It is designed to let you edit drawfiles easily and quickly without having to ungroup objects. It can change fill and line colours, including converting to monochrome or even negative images, change the thickness, join styles and cap styles of lines, strip out selected objects including text, create anti-aliased sprites larger than the computer's memory and "thumbnail" sprites. Files can be batch-processed and there is support for OLE (object linking and embedding) from and to Impression Style and Publisher. This means that if, for example, a graphic is printing too dark, it can be loaded into Draw_Changer, lightened and then saved back onto the page in its original size and position.

The utility is not just for use with Draw itself but can handle drawfiles exported from other programs such as Draw Plus, Vector and ArtWorks. One exception is that some layered files from Vector will not load, even though saved in Draw format.

Draw_Changer (version 1.00), which costs £39.95 including VAT, is very neatly packaged as a slim A5 booklet (the 24-page manual) with a plastic pocket containing a single disc inside the front cover. There is no unnecessary box to take up shelf space. The disc contains the program and an interactive on-line help file with a ClearView hypertext reader. There are also six drawfiles and the program contains example settings to demonstrate some of the ways they can be changed.

When all else fails...

If your usual approach to new software is to ignore the manual until you get stuck, be warned. When you start using Draw_Changer, you will be faced with strange windows full of unfamiliar icons and you will quickly realise that "all else" has indeed failed and you just have to read the instructions. It all looks a bit daunting at first but, with the aid of the manual and the very good on-screen help, it soon makes sense and you will find the program quite easy to use.

Put simply, the icons (all clearly illustrated and detailed in the manual) represent the various possible attributes of a drawfile, such as colours and line styles. Icons for the features you want to alter are dragged to one side of a window and icons representing the new features to replace them are dragged to the other side. This creates a filter specification, which can be given a name or even a description of up to 31 characters long. The specification is then saved into another window, which already contains a supplied selection of pre-set filters designed to carry out most of the changes you will want to make. Any number of these filters can be applied to a drawfile in any order.

Making the changes

The editing is done by dragging the drawfile to be changed onto the iconbar icon. This opens a toolbox and two windows, each showing an identical view of the image. The windows are either side by side or one below the other, according to how they best fit

on the screen, and this can be changed at the click of a button. The left or upper window always displays the unmodified source file while changes are shown on the "target" image in the other. These changes can be regarded as previews of the possible end result as they are not permanent until saved and they do not alter the original file unless, of course, the new picture is saved over it. This makes it possible to experiment with a succession of changes, using different combinations of filters, without having to keep undoing the previous results.

Colours can be substituted, mixed and graduated in various ways but you have to remember that changes are always carried out in relation to the original image. So if, for example, you have changed an area of red to green and you now wish to change this green to blue the appropriate change will be from red to blue.

There is another, very useful, window for "Specific object attributes" which can be used to apply local changes to individual objects within a picture.

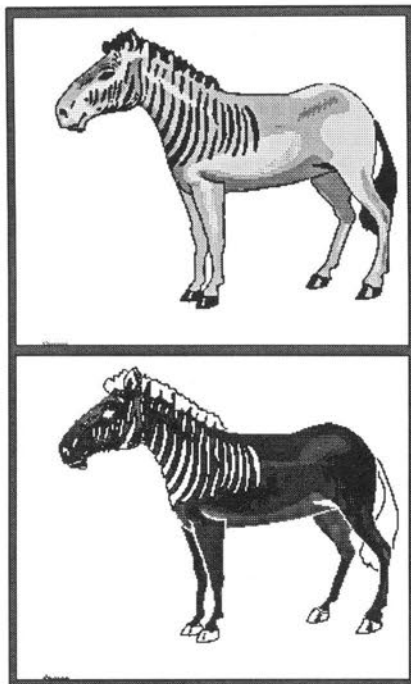
There are so many features in this program that you could be happily using it without realising that it had still more to offer. The first half of the manual is rather closely printed and it is worth re-reading all of it and browsing through the on-line help index to see what you may have missed.

One particular feature which should not be overlooked is the ability to produce a sprite file of "thumbnail" reproductions of all the drawfiles in a directory. This can make a very useful index. It works very quickly and produces very good quality dithered images. The maximum size of the resulting sprite is shown in advance but the program works economically and the final result is often smaller.

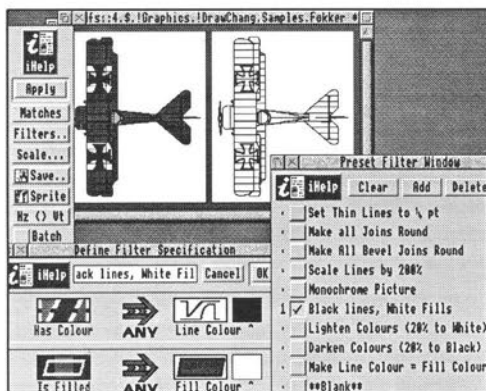
Quicker and easier

Draw_Changer can be used with all Acorn RISC OS 3 machines, including the Risc PC, except that it will not produce 24-bit sprites for the latter. If you use drawfiles frequently for DTP or any other purposes, you will find this versatile utility will make the job quicker and much easier to carry out.

Draw_Changer costs £34 +VAT from DEC_data. **A**



A drawfile in colour changed to a monochrome negative. Areas which were originally filled black have been given a black outline to retain the shape.



A coloured image can be changed to an outline drawing by using the "Black lines, White Fills" filter. The filter specification was set up in a window by dragging in icons representing the instructions to change any line which "has colour" to "line colour" black and any object which "is filled" to "fill colour" white.

£149 worth of Fireworkz for £99

Until September we're doing a very special offer for Fireworkz. For the summer period we've reduced the price from £149 to £99. You can buy a secondary licence for £396 instead of £596.

Fireworkz

Our superb integrated program incorporating the Wordz wordprocessor and Resultz spreadsheet really is easy to use. Both wordprocessor and spreadsheet share the same controls - once you've used one, you *know* how to use the other. The table editor is second to none and you can include spreadsheet calculations within your tables. Making graphs and editing formulas doesn't come any simpler.



Fireworkz for Windows will be available in July at the special price of £99. If you already have the RISC OS version you can add the Windows version for just £50. If you have Acorns and PCs you can now work on your files on either computer - you can even use the same floppy disc. Fireworkz has the same user interface and menu structure whichever platform it is running on. If you're thinking of buying a RISC PC and want true cross platform compatibility and integration - Fireworkz is the *only* choice!

Recordz and Fireworkz Pro

Fireworkz Pro is coming later this year. This incorporates Recordz - the next major piece in the jigsaw. It's a fast and friendly database, with card layout, searching and sorting. Recordz uses Datapower format files amongst others, shares Fireworkz wonderful user interface and can, as you would expect, exchange data with the spreadsheet.

Classcardz

In conjunction with Bretton Woods school we've been developing teaching cards for Wordz and Resultz which are now available. For £20 per set you get a collection of A4 laminated cards which you can photocopy. These take you through the first steps with Wordz and Resultz - creating and editing documents in a wordprocessor and spreadsheet.

Please call for further information and demonstration discs. Prices are special offer prices and exclude VAT and postage.

COLTON software

2 Signet Court, Swann's Road Cambridge
CB5 8LA.

Tel 0223 311881 Fax 0223 312010

Pinpoint Datafiles

Denise Bates

The Pinpoint Datafiles under review are "The Solar System" and "Dinosaurs". Each costs £12 +VAT, (site licence £36 +VAT) from Longman Logotron.

Solar System (Key Stages 3 & 4) requires Pinpoint or Pinpoint 2, to use it to its full potential. Dinosaurs (KS 2 & 3) can be used with Pinpoint Junior.

The philosophy behind Datafiles is to provide a significant volume of data which pupils can use to develop skills of handling and interpreting information, and to integrate IT skills across all areas of the curriculum. Both files contain at least 50 records with multiple fields. This allows pupils to perform more meaningful and complex analyses than if they had to build up their own database.

Worksheets

Each datafile comes with an explanatory booklet for teachers. Six photocopiable worksheets are provided. These have been well thought out to link the datafiles to attainment targets. The exercises are self-explanatory and a pupil could reasonably be expected to interrogate the database properly by following the hints and instructions.

The suggested exercises cover only a fraction of what could be achieved with the datafiles. By building up my own sort and search exercises, I was able to use them with much younger children than is envisaged and obtained very impressive results in terms of database handling and interpreting of selected information from them.

Apart from exercises in data manipulation and testing of hypotheses, pupils could extend or update the data from their own researches or create similar files on related subjects such as the galaxies.

Running the datafiles

I did encounter some problems. Some of the Solar System files are squashed. I was unable to unsquash these as my computer (A5000, RISC OS 3.1) locked up the moment I attempted to run them. The unsquashed RISC OS 2 files which were also provided worked without problem. The only difference between the files is the availability of certain fonts.

My other reservation concerns the presentation of the datasheets. In Solar System, individual entries are recorded over a background of celestial objects, some of which are white. This means that some of the text is impossible to read. In Dinosaurs, each card contains the same picture of two dinosaurs. My testers, knowledgeable in the wake of Jurassic Park, were very keen to point out that the pictures were wrong and to show me what the dinosaur in question looked like. Persuading them to work with the data and ignore the illustrations took some time.

Spreadsheet format

The information from the record cards is also accessible in spreadsheet format. Because of the volume of data, I was frustrated that Pinpoint Junior (used as the running medium for both files) does not allow the screen to be split and the name box locked whilst scrolling across the screen. Many questions require scrolling to find the answer and, even for an experienced database user, it is easy to forget which lines you should be examining.

Information extracted from the database can be saved in CSV format. This should increase their versatility for older pupils.

Conclusion

Despite my misgivings over the presentation of data, I would say that schools already using Pinpoint Datafiles should find Solar System and Dinosaurs a valuable addition. If you have a Pinpoint, but no files, these are worth investigating to see whether they could fit into your current curriculum development plans. For schools without Pinpoint, you have to take into account the cost of the system (Pinpoint £99 +VAT, Pinpoint Junior £27 +VAT). At this price, if you have no other use for the Pinpoint system, the costs involved would be greater than the benefit of being able to access these particular files.

At the Harrogate Show, I discussed my reservations with a representative of Longman Logotron who said he would put my criticism of clarity of the cards on the "wish list". I hope that the company will look at this as a priority because I feel that it detracts from a very good and sensibly priced product. **A**

Archive Glossary – August 1994

This glossary has been created on the basis that someone may read a word or a technical term or an abbreviation within the pages of Archive magazine and think, "What does XXXX mean?". If you think that about a word, look it up in this glossary. If it does not appear, please ring, write or fax and tell us what it was that you wanted to know.

Some of the definitions will be specific to Acorn computers whereas others are also more generally applicable.

We have printed this in the middle 16 pages so that, if you wish, you can either tear it out and keep it as a separate booklet or, if you open the staples carefully, you should be able to take the pages out, photocopy them (only one copy, please!!) and put them back again, thus preserving the magazine as supplied.

!

! – (pronounced "pling") A term used to denote an exclamation mark!

10base2 – An Ethernet standard that uses BNC connectors and coaxial cable. Also known as "thin wire" Ethernet.

10base5 – An Ethernet standard that uses 9-pin D-type connectors and special cable. Also known as "thick wire" Ethernet.

10baseT – An Ethernet standard that uses telephone connectors and telephone cable. Also known as "Cheapernet".

A

Action button – A button in a dialogue box which causes some action to occur.

ADFS – (Advanced Disc Filing System) This is the proprietary system used by Acorn for organising and storing data on floppy and hard drives.

AIM – (Another Image Manager) A suite of image processing software produced by Delft University of Technology in the Netherlands.

Application – The more general use of this word means any job for which the computer may be used, but it has a more specific definition. It is used to refer to a directory (with a name beginning with a "I") which contains a program or programs that work under RISC OS to perform a particular function. When the application is loaded, it usually makes itself available to the user via an icon on the righthand side of the iconbar.

Application directory – Similar to an ordinary directory in that it contains other files and directories but its name starts with an exclamation mark so that when you double click on the directory, it starts up the application rather than just opening the directory. To open an application directory, double click with <shift> held down.

Apps icon – This is an icon that appears on the lefthand side of the iconbar (RISC OS 3 onwards). It gives you access to a range of applications such as Draw, Paint, etc that are provided with each Archimedes or Risc PC computer.

ARM – (Acorn RISC Machine) This is the original name for the 32-bit RISC processor designed by Acorn Computers Ltd. In the name "ARM Ltd", the company formed between Acorn and Apple, the "ARM" actually stands for Advanced RISC Machine.

ASCII – (American Standard Code for Information Interchange) This is the most commonly used code for representing text using 8-bit binary numbers.

ASIC – (Application Specific Integrated Circuit) A single chip electronic circuit that is specially designed (by computer simulation – what else?!) for a particular application, e.g. to provide the logic needed to interface a '486 processor on a Risc PC second processor card to the main ARM600 processor and its address and data buses.

Assembler – A compiler for converting a program written in mnemonics into a machine code executable program.

AUN – (Acorn Universal Networking) This does not apply to a specific product or even a network

user interface but "the overall banner for Acorn's networking policy for the '90s giving the strategic direction of networking for Acorn computers."

B

Back icon – The icon at the top lefthand corner of a window which allows you to push the window to the back of the desktop.

Backdrop – This is a desktop background which may be a sprite or just a pattern.

Backplane – A small printed circuit board with connectors on it that allows you to plug in a number of expansion cards.

Basic – (Beginners All-purpose Symbol Instruction Code) A commonly-used interpreted high level language. It comes as standard on all Acorn computers.

Baud – This is a unit of speed for serial data transmission. 1 Baud = 1 bit per second.

BBS – (Bulletin Board Service) A bulletin board is an application run on a computer which stores information and messages that can be accessed by other computers, usually via the telephone line using a modem. Many bulletin boards allow a number of other computers to connect to the host computer at the same time by using a number of different modems and phone lines.

BIOS – (Basic input/output system) This is the part of a PC compatible's operating system that is held in ROM, allowing the computer to start up and load the rest of its operating system from disc. (cf RISC OS computers where the whole of the operating system, plus a few extra goodies, are held in ROM and are available at switch-on.)

Bit – (Binary digit) A bit is the smallest unit of binary data. It has two values, 0 and 1. A group of 8 bits of data (referred to as a byte) could be used to represent a single character using, most commonly, the ASCII code or it could represent (part of) an instruction that the computer would execute at some stage or it could represent (part of) a number.

Bit-mapped (graphics) – It is possible to represent a picture on a computer by using a matrix of

(coloured) dots. The resolution of bit-mapped pictures is limited by the numbers of dots used. (This contrasts with vector graphics – see below. For example, the Paint application produces bit-mapped graphics whereas Draw produces vector graphics.)

Bpp – (Bits per pixels) The number of binary bits used to store the colour of each pixel.

Bubblejet printer – This is a type of inkjet printer where the patterns on the paper are generated by squirting ink through a series of tiny nozzles in the print head. Functionally, it is the same as an inkjet printer.

Bug – Error in a computer program.

Bullet – A large black dot – • – used to highlight something within some text.

Bus – A set of parallel wires or PCB tracks along which data is transmitted in a computer system. The width of the bus refers to the number of parallel tracks – the wider the bus, the faster data can be transmitted down it.

Byte – A byte refers to (usually) 8 bits of binary data stored within a computer's memory or on a data storage medium.

C

C – A high level compiled language.

C++ – This is an object-oriented version of the C language.

CAD – (Computer Aided Design) A computer-based application that allows users to draw, design and model engineering objects.

Caps – Short for 'capitals'. See also small caps.

Capslock key – This is a key on the lefthand side of the keyboard. When it is pressed and the Capslock light comes on, all text typed into the keyboard appears in upper case.

Caret – A red vertical bar in a screen display that marks the point at which text will appear if it is typed in from the keyboard.

CD – (Compact Disc) A high density digital storage medium originally intended for hi-fi sound repro-

duction but now applied to storage of text and image data for various computer applications.

CDFS – Filing system used for accessing CD-ROMs.

CD-ROM – (Compact Disc Read Only Memory) A CD used for the storage of computer data. It is called a ROM to emphasise that the data on the disc, once written in the manufacturing stage, cannot be modified.

CFS – (Compression Filing System) This is a way of accessing a data storage system through a compression/decompression system such that it is transparent to the user, i.e. the user need hardly know that the data is being compressed and decompressed but just sees it as being read from and written to the storage device.

Clear (files) – A standard format for storing and transferring 24-bit pictures.

CLI – (Command line interpreter) Pressing <f12> allows you to type command lines into your RISC OS computer. These are then interpreted by the CLI.

Close icon – The icon at the top left of each window, next to the back icon which allows you to close the window.

Colour depth – Every pixel on a computer screen display has its colour defined by a certain number of bits of data. The colour depth refers to the range of different colours available for each pixel in a particular screen mode. If a single bit were used, it would only allow it to be one of two colours – usually black or white. If it were defined by two bits, it could have 4 (2^2) different colours, four bits would provide (2^4) 16 different colours, 8-bit provides 256 (2^8) colours, 16-bit gives over 32 thousand colours and 24-bit allows each pixel to have any of about 16.7 million different colours – about as much as the human eye can distinguish. The 32-bit colour of the Risc PC “only” gives 16 million colours but the extra 8 bits can be used by the computer to produce various different special effects.

Command line – All Acorn computers now come with a WIMP interface. However, it is possible to give the computer commands by typing them in from the keyboard. If you press <f12>, a star

prompt appears. This is the command line. You can enter commands such as CAT<return> to get a catalogue of the current storage device.

Compiler – In a computer language, instructions that the programmer enters as (vaguely) understandable words have to be translated into series of the very simplest steps that the cpu executes. These simple instructions are called machine code. The job of a compiler is to take the whole of a program and convert it into a single machine code program which can be executed then or at a later stage. This contrasts with an interpreted language in which each individual line of the program is converted into machine code as the program is running. In a compiled language, you have to convert the whole program before you can run any of it whereas in an interpreted language you can run the program at any time, stop it, change the program and run it again. On the other hand, interpreted programs tend to run more slowly because even if one line of the program is run many times, it has to be interpreted into machine code every time it is run.

Compression/decompression – There are various mathematical techniques which can be used to store computer data in a smaller amount of memory than the uncompressed data occupies. Some of these techniques are completely reversible so that the decompressed data is identical to the original data. However, in the case of images, it may be acceptable to allow a degree of degradation of the data in order to increase the amount by which the data is compressed.

Configuration – A collection of settings and option which describe how the computer will operate when it is first switched on.

Control codes – Special non-printing ASCII codes which cause a device to perform some electronic or mechanical action, e.g. ASCII 10 is linefeed, 13 is a carriage return and 12 ejects the paper or clears the screen.

Coprocessor – See Second Processor.

CPS – (Characters per second) A way of measuring the speed of dot matrix or inkjet printers.

CPU – (Central Processing Unit) This is the electronic circuitry at the heart of a computer that

executes (very rapidly!) a series of simple steps of reading, manipulating and writing information to and from the computer's RAM memory and input/output devices.

CRC – (Cyclic redundancy check) This is a way of checking for errors in stored and transmitted data.

Crop marks – In publishing, it is important to define where a printed image appears in relation to the edges of the paper. To do so, the images can be printed on a larger sheet of paper and markers placed on the sheet to show where the corners of the paper will be.

CSV – (Comma Separated Variables) A standard way in which data is stored in a file where the items of data are separated by commas.

CMYK – (Cyan, Magenta, Yellow, Key) A method of specifying colour by using the amounts of the three primary (subtractive) colours plus the amount of black (Key).

D

Database – The definition of this word has changed over the years. It used to mean a unified collection of data files but now it tends to refer to an integrated system of data plus the means of interrogating and manipulating the data – even to the extent of referring to a database language.

Daughterboard – See under 'motherboard'.

DEBI – (DMA Extended Bus Interface) This is a means of connecting expansion cards to the Risc PC. (Depending on which magazine you read, it can support anything between eight and fourteen expansion cards! Currently, the maximum is eight but we think it is theoretically possible to have more.)

Debug – Remove the bugs (errors) within a program.

Debugger – An application written to provide tools to aid the process of finding errors in a program.

Decompression – See under compression.

Default – The standard setting or option which the computer selects unless the user has specifically told it to do otherwise.

Device – This is the technical term for any information storage medium (e.g. floppy or hard drive) or transmission system (e.g. network, modem or printer) that can be accessed through the computer. Each currently available device is represented by an icon at the lefthand side of the iconbar.

Dhrystones – (strictly Dhrystones/second) This is a means of indicating the speed of a processor by testing the number of iterations of a particular test program it can perform each second. For example, the Risc PC 600 with a 30MHz ARM600 processor can perform about 40,000 Dhrystones/second.

Dialogue box – A window in which you are expected to select various options and/or enter a filename before the computer performs a particular task or operation.

Digitiser – An electronic circuit which takes an analogue signal such as a sound of a video signal and turns it into digital information which can be stored and/or manipulated within the computer and output again as a sound or video signal.

Direct drive laser printer – In conventional laser printers, the computer sends information to the printer about what is to be printed, in what position and with what styles etc. The processor and memory in the laser printer are then used to work out what dots to place where on the paper. In a direct drive laser, by contrast, the computer works out what the pattern of dots should be and then sends the dot pattern down to the printer on a high speed ("video") parallel interface. This means that the printer needs little or no memory of its own and the process is faster because ARM processors tend to be much more powerful than the processors used in laser printers.

Directory – When data is stored on a storage medium such as a floppy disc, it can be grouped into directories. When the iconbar icon is clicked, a window appears showing the data in the root (i.e. main) directory. This may be items of data (stored as files), applications or other directories. These directories in turn can contain more information and/or further sub-directories. This system of directories within directories is called a hierarchical data structure.

Dithering – When displaying a picture on a computer screen in, say, a 256 colour mode, it is possible to give the impression of intermediate colours by mixing dots of the different colours in different ratios. This is done using a random displacement of these dots to avoid a patterned effect. This technique is called dithering.

DMA – (Direct Memory Access) When information is being taken into a computer from an external source, the cpu normally reads a location, or block of locations, in the external device and writes the information into its own RAM memory. With DMA, by contrast, the information is written directly from the external device into the cpu's memory without the cpu being involved. This means that the process is much faster, as the cpu can be doing other things while the information is being loaded automatically into memory.

Dongle – This is a small electronic circuit, usually held in a plastic connector block, that goes on the parallel port of a computer. It forms an electronic 'key' that allows you to use a particular application (such as Impression or ArtWorks). The application checks every now and then to see if a dongle is present and, if not, it shuts itself down and will not restart.

DOS – (Disc Operating System – but also now used as shorthand for DR-DOS or MS-DOS) These are the operating systems most commonly used on IBM PC computers and compatibles. They can be used on Acorn computers by using the PC Emulator or a PC expansion card or, on a Risc PC, a PC processor card. They are command-line operating systems, i.e. they do not use a wimp interface. (For most practical purposes, there is very little difference between DR-DOS and MS-DOS.)

Double density floppy discs – Discs that can store approximately 800Kb of data when formatted.

dpi – (dots per inch) On a desktop printer, the text and graphics are reproduced by rows and rows of tiny dots. The smaller the dots, the better the definition of the resulting printout. This is usually specified as the number of dots per inch that the printer can lay onto the paper. The same idea is used for scanning. When scanning a picture or diagram, the grey level (see below) of rows of tiny

areas of the picture are assessed by the scanner. The closeness of the areas being differentiated is measured in dots per inch.

DPMS – (Display Power Management Signalling) When monitors are not being used, it is a waste of energy to have them on at normal brightness. RISC OS 3 supports screen blanking which helps to reduce energy consumption, but some monitors can accept special electronic signals from a computer to tell it to drop into a very low power consumption mode if it is not being used. This signalling between computer and monitor is not available in all monitors, although a lot of newer monitors are beginning to provide it.

DPOB – (Dual Processor Open Bus) On the Risc PC, the processor(s) are held on separate cards which plug into the main PCB or motherboard. It can take two such processor cards and the dual processor open bus is a way of allowing two different (or similar) processors to share the use of the computer's memory and input/output and data storage facilities.

DRAM – (Dynamic Random Access Memory) This is the most common form of RAM memory used in computers today. 'Dynamic' is a technical term which refers to the way in which the information is stored within the chips.

DSP – (Digital Sound Processing) A set of techniques for modifying sound signals. It involves digitising the signals, performing various mathematical processes on the data and then turning the resulting data back into an analogue signal.

DTP – (DeskTop Publishing) As desktop computers have increased in processing power, it has become possible for them to handle both text and graphics, to allow users to manipulate them on-screen and output them to a printer. In this way, "books" can be produced on a desktop computer – hence the term 'desktop publishing'.

E

Econet – This is a means of connecting two or more computers together so that they can exchange information and share the use of peripherals such as printers. It is a type of Local Area Network (LAN) developed in the early '80s by Acorn Computers Ltd.

Editor (1) – An application that allows you to edit the contents of a file.

Editor (2) – Someone who is daft enough to take on the task of putting together a massive glossary!

EEPROM – (Electrically Erasable Programmable Read-Only Memory) A form of non-volatile memory that remains unchanged, even when the power is switched off but which can be altered in situ by using appropriate electronic circuitry i.e. it can be reprogrammed through software.

E-mail – (Electronic mail) A means communicating with other computer users via a LAN or through a modem to a national or international computer centre.

EPROM – (Erasable Programmable Read-Only Memory) A form of non-volatile memory that remains unchanged even when the power is switched off but which can be altered by using ultraviolet radiation to erase the information and high voltages to re-program it. (But see Flash ROM and EEPROM.)

EPS – (Encapsulated PostScript) This is a type of computer-generated file containing the necessary PostScript commands to reproduce the picture. It usually includes a 'snapshot' of the picture that can be used for positioning purposes. EPS is a defined standard allowing output from one application to be used within another.

Error box – A special type of dialogue box that gives information to a user about the type of error that has occurred, requiring him to acknowledge that it has been read.

Ethernet – Another type of LAN, but much faster than Econet. It was developed by Xerox Corporation in the late '80s.

Expansion card – (formerly called podules or peripheral modules) An extra circuit board fitted to your computer that will allow it to perform various extra functions which cannot be done with software alone.

F

FAST – Federation Against Software Theft

File – A collection of information gathered together and given a filename to identify it. It is stored in a directory in a filing system.

Filer or Filing system – A system used to handle the storage of information. The ADFS filer and the SCSI filer are the two most common on Acorn machines.

Firmware – This refers to software, applications and/or data which is stored in a ROM.

Flash ROM – To change the contents of a conventional EPROM, the chip has to be removed and erased using ultra-violet radiation. It can then be electrically re-programmed. A flash ROM, by contrast, can be re-programmed electrically in situ, i.e. it can be reprogrammed through software.

Floating point numbers – In order to represent a wider range of numbers than can be done with integers, and to represent fractions, computers use floating point numbers. These use a number of bytes (usually four) to represent the main part of the number and another byte to represent the power of two by which the number is multiplied.

Floppy disc/driver – This is a data storage medium consisting of a removable flexible (floppy) magnetic disc in a hard plastic case. These discs can be inserted as required into a floppy drive usually housed within the case of the computer. The most common standard of floppy drive used now is 3½". Some 5¼" drives are still in use but the 8" floppies have virtually all been consigned to the museum of computer technology.

FMV – (Full Motion Video) A term used to refer to displaying video on a computer screen at full speed. Acorn Replay provides FMV at 12.5 or 25 frames per second.

Fonts – Characters on the screen and on the printed page can take on all sorts of different shapes and styles. A font is a set of characters that have been designed so that all the letters of the alphabet and a whole range of other special characters (200 or more in a complete set) have the same style. There are also sets of related fonts using the same basic style but with the characters angled (italic) or made heavier (bold) or both (bold italic).

Format – Formatting is preparing a floppy disc or hard disc ready to receive data. Hard discs usually arrive ready-formatted. Floppy discs may be formatted in a number of different ways. Not all formats of floppy disc can be read on all computers. Without any extra software, Acorn computers can read and write various Acorn formats as well as a number of different PC and Atari formats. With extra software, other formats, such as Apple Mac, are also accessible on Acorn computers.

FPA – (Floating Point Accelerator) This is a hardware add-on to a cpu which enables it to do floating point calculations more quickly.

FPE – (Floating Point Emulator) If an application requires full floating point calculations, it is possible to run it on a computer that doesn't actually have an FPA by emulating the FPA's functions in software.

Function keys – These are the set of twelve keys at the top of the keyboard, all prefixed with an "F". What they do will depend on the application currently in use.

G

Gb – (Gigabyte) Approximately one thousand million bytes of computer data. (Actually, it is $1K \times 1K \times 1Kb = 2^{30} = 1024 \times 1024 \times 1024 = 1,073,741,824$ bytes.)

Genlock – This is a device which enables the output from the computer's video system to be synchronised with a normal video signal so that computer-generated text and graphics can be superimposed on the video signal.

GIF (files) – (Graphics Interchange Format) A standard format for storing and transferring bit-mapped graphics.

Grey levels – A photograph may have some areas completely white and some completely black. Most areas, however, will be somewhere in between. If you wish to represent that picture electronically, you have to judge the 'greyness' of each part of the picture. If you represent this on a scale of 0 to 15 (16 grey levels), it will not give such a faithful representation of the picture as if 64 or 256 grey levels were used. However, the more grey levels used to represent each point on the picture, the more data is being used. For example, in 256 grey levels, a full A4 picture scanned at 400 d.p.i. could occupy as much as 12Mb!

GUI – (Graphical User Interface) At one time, virtually all interaction between humans and computers was done on the basis of the human typing words or codes into some form of keyboard. As computing power became more accessible, it became possible to provide a form of interaction that was based far more on pictures (icons) within windows on the screen. The user could then indicate choice and initiate action by using a mouse or trackerball to move a pointer around the screen.

H

Hard drive – A case containing a number of rigid metal discs covered with magnetised material that can be used to store data; it usually has a capacity of several megabytes or even gigabytes.

HD – (Hard drive)

Hierarchical – This is usually used in referring to the data structure on storage media – see 'directory'.

High level language – This refers to a computer language in which instructions that the programmer enters are each converted into a number of machine code instructions by a compiler or an interpreter. Basic, Fortran, C etc are high level languages, whereas assembly language is a low level language.

High density floppy discs – Discs that can store approximately 1,600Kb of data when formatted under ADFS or up to 1,440Kb when formatted under MSDOS.

HSV – (Hue Saturation Value) This is a colour-picking system for use in DTP.

Hourglass – This is the egg-timer thing that appears on the screen all too often, telling you that the application is taking a long time to do something and that it doesn't want interrupting.

I

Iconbar – The strip along the bottom of the computer screen that contains icons for devices (to the left) and applications (to the right) that are currently available to the user.

Icons – Small pictures representing devices, files, directories, applications, etc.

IDC – (Insulation Displacement Connector) This refers to a connector where the connection between the contacts and the individual wires is made by squeezing a row (or usually two rows) of sharp metal teeth onto a ribbon cable so that the teeth cut into the insulation and make contact with each individual wire.

IDE – (Integrated Drive Electronics) An electronic standard method of connecting one or two hard drives to a computer system. The standard was set up to provide a simpler and cheaper means of connecting hard drives to IBM and compatible computers than was currently available.

Image processing – If an image is stored on a computer as binary data (such as a sprite file) it is possible to manipulate the data mathematically to enhance, distort, translate or otherwise modify the picture in controlled ways.

Inkjet printer – This is a type of printer where the patterns on the paper are generated by squirting ink through a series of tiny nozzles in the print head.

Input focus – The output from the keyboard can be directed to one and only one window at a time. The window currently receiving information from the keyboard is said to have the input focus. This is indicated by the title bar of the window changing from grey to yellow.

ISA Bus – (Industry Standard Architecture) This is a "standard" expansion interface as used on PC compatibles.

Interlace – Build up a picture on a monitor screen using two passes, each displaying alternate lines, the aim being to reduce flicker effects.

Interpreter – A type of high level language in which each instruction is converted into machine executable code line by line, as the program proceeds. (See 'compiler' for more explanation.)

I/O – (Input/Output)

IOC – (Input/Output Controller) The I/O chip used on pre-Risc PC Acorn computers was called IOC.

IOMD – (Input Output Memory Device) This is a computer chip designed by ARM Ltd which allows ARM processors to control input/output devices and to access memory.

J

JPEG – ("Joint Picture Encoding Group" or, some say, "Joint Photographic Experts Group") It is a body set up in the USA to produce an industry standard for still picture compression and storage. The theory is that, with an agreed file format, one company's decompression program can read the files produced by someone else's compression program.

K

Kb – (Kilobyte) Approximately one thousand bytes of computer data. (Actually, it is $2^{10} = 1024$ bytes.)

Kernel – The main part of the RISC OS operating system.

Kerning – This refers to the spacing between individual pairs of characters. To improve the look of printed text, certain character pairs need to be printed closer together than others.

L

LAN – (Local area network) A general term for a means of connecting computers together on one site so that they can share information. Econet and Ethernet are examples of LANs.

Leafname – The last part of the pathname, i.e. the name of the file or directory being referred to.

Letter box mode – There are some monitors that were never designed to display screen modes of the like of Acorn modes 12, 15, etc. Some are completely incapable of displaying them whereas others can display them but with a somewhat reduced vertical height, the shape being likened to the mouth of a letter box.

Linker – When using a compiler, this is the program that joins the object code from various sub-programs, including the library routines, to form the final executable machine code program.

Lisp – A high level computer language often associated with artificial intelligence programming.

Low level language – A language which involves programming the computer at the level of one written instruction (or mnemonic) for each machine code instruction.

M

Mb – (Megabyte) Approximately one million bytes of computer data. (Actually, it is $1K \times 1Kb = 2^{20} = 1024 \times 1024 = 1,048,576$ bytes.)

MEMC – (MEMory Controller) The chip used on pre-Risc PC Acorn computers to control the way the cpu and video controller accessed the computer's memory.

MHz – (MegaHertz or Millions of cycles per second) This is most often used to refer to the speed of a computer's processor or memory. e.g. the Risc PC 600 has a 30MHz processor which means that it can carry out 30 million program steps each second.

Midi – (Musical Instrument Digital Interface) A defined standard for the physical link-up between

musical instruments and controllers, and also the format of the data transmitted.

MIPS – (Million Instructions Per Second) A measure of how fast a cpu is running in terms of the number of instructions it can execute each second.

Mnemonic – A code used in an assembler to represent a machine code instruction.

Mode – See screen mode.

Modem – (An abbreviation for **modulator-demodulator**) It is a device which takes a serial stream of computer data and converts it into audible tones that can be transmitted down a telephone line that was originally design for carrying voice information. It enables two computers to exchange data at a distance via the telephone system.

Monitortype – A computer variable that determines which ranges of screen modes the computer will attempt to display on your monitor.

Motherboard – The main circuit board of a computer is sometimes referred to as a motherboard, especially when, as in the Risc PC, many of the functional parts of the computer are on separate PCBs (sometimes called daughterboards) that are plugged into the main or motherboard.

MPC – (Multimedia Personal Computer) The "standard" multimedia computer used in the PC world.

MPEG – (Motion Picture Experts Group) A group of technologists who are establishing an international standard for the compression of moving video and its associated audio.

MTBF – (Mean Time Between Failure) An indication of how long, on average, it will be before a machine goes wrong.

Multimedia – A blend of communications elements, usually computer-based, which allow information in such forms as sound, speech, text, still pictures, moving images and animations to be presented to the user so that it can be accessed in an interactive way, the user selecting which piece(s) of information to pursue.

Multisession – Information stored on a PhotoCD can be added to at a later date with the appropriate

(very expensive) equipment. In order to read all the information on these CDs, you need a CD-ROM drive that is multisession capable.

Multisync monitor – Some monitors are designed (for cheapness) that only display in certain modes. Others can display a range of different modes – they can synchronise onto a range of different frequency signals and are therefore called ‘multisync’ monitors.

Multitasking – An operating system like RISC OS is capable of running a number of different tasks all at the same time. This is multitasking. (Actually, I think it's a bit of a con. The cpu can really only do one job at a time but what it does is to do a little bit of each task every fraction of a second.)

N

Network – A means of connecting a number of computers together so that they can share data and the use of peripherals.

NFS – (Network Filing System) A RISC OS filing system that uses Acorn's Econet network system.

O

Obey file – A file of commands prepared for execution by the RISC OS command line interpreter.

Object code – the machine-executable code produced by a compiler.

Object oriented – The approach used in conventional programming is to have a number of procedures or routines which can work on some data. There is no conceptual connection between the data and the operations which are performed on it. In contrast to this, object-oriented programming works on a concept of objects, which consist both of data fields (similar to a structure in C) and of a list of methods which may be applied to that data. For example, you could define an object point (with data x and y , both integers), and define a move method on it to change these fields.

One of the most useful concepts which may be derived from this is inheritance – an object can be defined as a sub-type of another object, and in doing so inherit all its methods (and data fields), but may also add its own. As an example, you could define a

circle object with data x and y (inherited from the parent point object) but with another data field, *radius*. Similarly, the circle would inherit the move method (which would not have to be rewritten), but could also have a resize method added to it.

The result of these changes in approach is that it is often easier to implement large programs, since it is harder to get confused about how a piece of data should be used, and less code needs to be rewritten. Object-oriented languages include Modula-3, C++ and Objective C.

(Well, you wanted to know what it meant, didn't you?! Thanks to Andrew Garrard for that definition. Ed.)

OCR – (Optical Character Recognition) Computers can be trained to examine the shapes of typed or printed characters and work out what the letters, words and sentences are. So, combined with a scanner or camera and digitiser, the computer can ‘read’ text off books and paper. Because of the difficulty of being 100% accurate, it may take as long to edit out the mistakes as to type the text in from scratch, so OCR programmers are fighting all the time to make their programs more and more accurate without becoming too slow for practical use. This facility will become more viable as we get progressively faster processors.

OLE – (Object Linking and Embedding) This is a means of linking data of different types (e.g. text, drawfiles, sprites, etc) within one document so that each element can be easily edited. Double-clicking on an element brings up the appropriate editing application (Draw, Paint, ArtWorks, etc) to allow you to make the necessary changes without having to export and then re-import the data.

Operating system – This is the set of “house-keeping” programs within a computer which handle all the input/output, filing systems, etc. All modern Acorn computers come with the RISC OS operating system as standard (stored in ROM) but it is possible to use alternative operating systems such as DR-DOS and MS-DOS by adding the appropriate software or hardware.

Option icon – An icon that appears in a dialogue box. Each time you click on it, you will switch a particular option on or off.

OS – (Operating System – See above)

OS graphic unit – A unit for defining graphics under RISC OS so that they are independent of the current screen mode. There are nominally 180 OS graphics units to the inch.

Outline fonts – These are fonts that are described mathematically by using equations to define the curves that make up the outline of the character's shape. Using these equations, it is relatively simple to work out how to display any font at any size, either on the screen or on a printer where the shape has to be reproduced as a series of dots.

P

Palette – This is a set of colours used for the desktop display. If the display has, say, 256 colours, the palette determines which actual physical colour is displayed on the screen for each of the colour numbers from 0 to 255.

Pane – A dialogue box that is attached to a particular window, e.g. the toolbox at the side of a Draw window.

Parallel – A device or communication channel is said to be parallel if the data is sent several bits at a time down several parallel wires – the printer port sends eight bits of data at a time.

Parallel processor – In some computers, such as the Risc PC, it is possible to have two processors working side-by-side, sharing the use of memory, data storage and peripherals – such processors are referred to as 'parallel processors'.

Parent directory – The directory within which the directory you are currently dealing with is stored. (It is the opposite of a subdirectory.)

Parity – A method of checking for errors in transmitted or stored data. An extra bit (the parity bit) is added to each ASCII character so that the number of '1' bits is always odd (or always even).

Pathname – This is the full name of a file or directory including the filing system, disc name (or number) and the sequence of directories that have to be opened to access that particular file or directory e.g. SCSI:;Paul105.\$!Archive.Bits.!Glossary

PBM (files) – (Portable Bit-Maps) A standard format for storing and transferring bit-mapped graphics.

PCB – (Printed Circuit Board) A piece of insulating material covered with conducting tracks, used to interconnect electronic components to make up an electronic circuit.

PC Card – A PC processor on a separate card that can be used as a second processor in a Risc PC.

PC Emulator – A software application that can work within RISC OS or as a separate program taking over the whole of the computer's processing power which enables the computer to pretend to be an IBM PC and run (most of) the programs that are written to run under MS-DOS or DR-DOS on those computers.

PC Expansion Card – An expansion card containing a PC processor plus memory plus some I/O capability that can allow PC programs to be run within the RISC OS environment.

Pentium – This is a 32-bit cpu with a 64-bit data bus produced by Intel Corporation.

Peripheral – An item of hardware such as a monitor or printer that can be connected to your computer.

Pinboard – This is an application that makes use of the blank areas of the desktop. You can 'stick' various files or applications onto it so that they are easily accessible without having the filer windows open for each of the directories in which they are stored.

Pixel – A tiny point of light and colour which is the smallest picture element in a video or computer image. The more pixels making up the image, the better the resolution.

Podule – See 'expansion card'.

Pop-up menu – A menu available by clicking an icon in within a dialogue box. The icon is often placed alongside a display showing the current setting of that option.

PostScript – A page description language used in some laser printers and imagesetters. PostScript is a defined standard so that applications using it can

produce output that can be printed on any PostScript device.

Printer driver – This is the program that converts a document or file created by an application into information that your particular printer needs to reproduce the information on paper. The term can be extended to “printing” a file or document via a fax modem. The output is in the form which a fax modem can then transmit, the printed output appearing on the fax at the other end of the phone line.

Printer manager – An application that oversees the printing process.

Prolog – A high level computer language often associated with artificial intelligence programming.

Processor – See CPU.

PRM – (Programmers Reference Manual) A set of manuals covering many highly technical programming details of the RISC OS operating system.

Public Domain (PD) – There are a number of enthusiastic people who produce programs and clipart which they want to make freely available for other people to use – rather than trying to make money by selling them. The material is distributed at cost by various individuals and agencies. There are quite a number of PD libraries dealing with material for Acorn computers. (Norwich Computer Services currently runs one such library, part of which raises money for charity.)

Q

Quit – Close a file or application so that its window(s) disappear from the screen and, in the case of an application, it disappears from the iconbar.

Qwerty (keyboard) – Look at the six characters at the top left of your keyboard and you’ll see what it’s called a qwerty keyboard.

R

Radio icons – A group of buttons within a dialogue box, only one of which can be selected at a time.

RAM – (Random Access Memory) This is the place within the computer where information is

stored on a temporary basis. When the computer is switched off, information in RAM is lost.

RAM disc – Part of the computer’s RAM memory can be set aside so that the user can store files and data on a temporary basis during a computer session. The information is accessed through a filer in the same way that you would access an external storage medium such as a floppy or hard drive.

Relocatable module – A section of computer code that can be used to extend the facilities of the operating system and which can then be used by any application running in the computer.

Removable hard disc drive – This is cross between a hard drive and a floppy drive. It uses a solid metal disc so that it can store large amounts of data (currently up to 270Mb on a single disc) but the disc is held in a plastic case like a thick floppy disc. The cartridge can be taken in and out of the drive so that a number of discs can be used for different purposes, and the data can be transferred easily from one computer to another.

Resolution – The complexity of detail that can be seen on a computer screen or a printer can be specified in terms of resolution, i.e. the numbers of dots per inch.

Resources – The various programs and data files which an application uses to perform its task.

RGB – (Red Green Blue) Any colour can be made up of a combination of different amounts of light of these three primary colours. So colour monitors (RGB monitors) use sets of three coloured phosphor dots of these three colours.

RIP – (Raster Image Processor) This is a device used in the printing industry to produce a very high resolution output.

RISC – This is an acronym for Reduced Instruction Set Computer. Companies like Acorn realised that the trend to more and more complex computer processors wasn’t necessarily the best way to increase the overall speed of computer processing. These complex processors were spending the majority of their time doing simple tasks anyway. Acorn made the processors simpler, which meant they could work much faster doing the simple jobs like pushing text around and drawing dots on the screen.

This is partly why RISC processors are so well-suited to DTP applications. (N.B. This explanation is a gross over-simplification which doesn't do justice to the brilliance of the designers of the Acorn RISC processors!)

RISC OS – This is the operating system used on Acorn's RISC-based computers.

RISC_OSLib – A library supplied with Acorn's ANSI C compiler designed to help you program applications that run in the RISC OS desktop.

RMA – (Relocatable Module Area) The area of RAM set aside for the program modules used by different applications.

ROM – (Read-Only Memory) A form of non-volatile memory that remains unchanged even when the power is switched off and which cannot (usually) be altered. (But see Flash ROM and EPROM.)

Root directory – The main directory of a storage device which contains all other directories and files and which is displayed when the iconbar icon of the device is clicked.

RS232/RS423 – These are two different (but similar) electrical standards for the transmission of serial data.

S

Sampler – An add-on that takes a sound signal as input and turns it into digital data that can be stored and/or manipulated within the computer and then be output again through a DAC (digital to analogue converter).

Scanner – An add-on that enables the user to read visual images into the computer from originals such as photographs and books.

SCART – (Syndicat des Constructeurs d'Appareils de Radio et de Television – well, you wanted to know, didn't you!) A means of connecting computers, video recorders, etc to televisions and monitors using standard connections.

!Scrap – A special directory on which RISC OS makes available for applications to use as temporary storage space. Use of this directory is under the

control of the application and the user is normally unaware of it.

Screen blanking – Within RISC OS 3 is an optional facility (set in the configuration) which switches the screen to black after a user-definable length of time if the computer is not being used. As soon as a key is pressed or the mouse is moved, the screen returns to normal. This reduces the likelihood of monitors having patterns 'burned in' to the face of the tube (and reduces the power consumption of the monitor to some extent).

Screen mode – Information can be displayed on TV or monitor screens in a number of different formats. The numbers of pixels that make up the screen may be different (from, say, 480 × 512 to 1600 × 1200 or more) and the colour depth of each pixel may vary. The amount of memory used to display the screen will increase as both the number of pixels and the colour depth are increased. There is a trade-off between the two as the amount of video memory is usually limited. A particular size and colour depth is referred to as a screen mode.

Scroll arrow – The arrows within a window that are used to allow you to scroll through a document or list or to move around the contents of a window that is too big to display in the current size of window.

Scrolling – If a file or document is too large to be displayed on the screen all at once, it is displayed in a window with scroll bars and scroll arrows so that you can move around and view different parts of it as necessary.

SCSI – (Small Computer Systems Interface) This is an agreed standard system for communicating data between computers and data storage and acquisition devices, the data being transmitted along parallel data paths. It is commonly used to link a computer to hard drives, CD-ROMs and/or scanners, but it can also be used to link computers together, subject to the limitation that you can only link a total of eight different 'devices' together.

SCSIFS – A RISC OS filing system used for communicating with devices attached to the SCSI interface.

Second processor – In computers such as the Risc PC it is possible to have more than one processor working together sharing memory, data storage and peripherals. In the Risc PC, the ARM610 takes charge when the computer is first switched on and it then allows the other processor (the 'second processor') access to memory etc.

Select box – A rectangular box used to outline an area within which any objects are selected.

Self-test – When a computer is switched on, it runs through a series of tests to check, as far as it is able, that it is functioning correctly. In a RISC OS 3 (or later) computer, if any of these self-tests fails, it will usually issue some sort of error message. If the system has not managed to get as far as producing a working display on the VDU, it will send a coded message about the likely error by flashing the LED on the floppy drive.

Serial – A device or communication channel is said to be serial if the data is sent sequentially, one bit at a time, as opposed to being sent several bits at a time down parallel wires.

Shovelware – This is a derogatory term for software and other data of inferior quality that is used to 'pack out' a CD-ROM and make it up to 600Mb, or whatever, to convince the potential purchaser that the disc is worth buying.

Shutdown – A menu option on the task manager iconbar menu which 'clears up' the computer prior to switching it off. It can also be done by using <ctrl-shift-f12>.

SIMM – (Single In-line Memory Module) An industry standard plug-in memory card as used in the Risc PC, for example.

Slice – (Single Layer Item of Computer Expansion!) The name applies to a single extra layer of case in a Risc PC. It includes a new backplane with two more slots than previously and four locking pins longer than the ones they replace.

Smalltalk – A high level computer programming language that allows you to use object-oriented techniques.

SOHO (market) – (Small Office Home Office) A defined market into which companies try to sell their computer goodies.

Source code – the name given to the program written in a high level language which is converted by a compiler into machine executable code.

Sprite – A graphic made up of coloured pixels.

Sprite pool – An area of memory used by RISC OS for storing sprites.

SQL – (Structured Query Language) Language for extracting information from a database.

Subdirectory – Within any directory, you can store files and other directories. A directory that appears inside another directory is referred to as a subdirectory.

SVGA – (Super VGA) An enhanced colour graphics standard from the PC world – 1024x768.

System application (!System) – An application that contains many of the resources that can be used by any or all other applications.

System disc – A floppy disc containing a copy of !System.

T

Tapestreamer – Computer data has, for many years, been stored on magnetic tape. This is a basically inefficient method in the sense that if you are at one end of the tape and the data you want is at the other end, it can take a long time to reach the information. However, it is very efficient in the sense that the medium, magnetic tape, can be very inexpensive per megabyte. A tapestreamer is a glorified (video) tape recorder controlled by the computer and is used mainly for backup storage purposes.

Task manager – This is the Acorn icon at the far right of the iconbar. It is an application that controls the allocation and use of memory within the computer.

TCP/IP – (Transfer Control Protocol / Interface Protocol) This is a standard protocol for transferring data between different computers on a LAN or via modem link.

Template – A set of windows and dialogue boxes that have been designed for use within an application.

TIFF (files) – (Tagged Image File Format) A very versatile format for storing and transferring bit-mapped graphics.

Title bar – The bar along the top of a window that contains the name of that window.

TLB – (Translation Look-Aside Buffer) This is part of an ARM processor which helps it to access different areas of memory more quickly. Basically, it's the bigger the buffer the better!

Toggle size icon – The icon at the top righthand corner of a window that is used to extend and contract a window between its maximum size and the size and position to which you last reduced it.

Tokenised – When a Basic program is stored, it is usually stored with each keyword represented by a single byte rather than as a string of ASCII codes. These single bytes are referred to as tokens.

Toolbox – A window or pane of tool icons. It may be free-standing or attached to another widow.

Toner – This is the fine powder used in a laser printer (or photocopier).

TPI – (Tracks per inch) This is one way of specifying the amount of data you can store on your floppy discs, e.g. 800Kb 3½" discs (DD) are 135tpi.

Tracking – In some applications, the spacing between individual letters within a block of text can be controlled – this is called tracking. If the tracking is changed, the spacing between all the characters is increased or decreased. This is distinct from kerning which relates to the spacing between individual pairs of characters.

Transparency mask – An optional part of a sprite that defines which pixels of that sprite are transparent.

TRM – (Technical Reference Manual) Term used to refer to the optional hardware manual for Acorn computers.

TSV – (Tab Separated Variables) A standard way in which data is stored in a file where the items of data are separated by tab characters.

U

U think of something – I can't!

V

Vapourware – A derogatory term for software that is being advertised but isn't actually available – it is often said to be available "real soon now"!

VDU – (Visual Display Unit) The monitor or television used to display the output of the computer.

Vector graphics – It is possible to represent a picture on a computer by using a series of lines, shapes, characters etc. When such pictures are printed, the resolution of the pictures produced is only limited by the resolution of the output device. (This contrasts with bit-mapped graphics – see above. For example, the Draw application produces vector graphics whereas Paint produces bit-mapped graphics.)

VESA – (Video Electronics Standards Association)

VGA – (Video Graphics Adapter or Array) A graphics standard from the PC world – 640×480.

VIDC20 – (Video Controller) The video and audio controller designed by ARM Ltd and used in the Risc PC.

Virtual memory – A method by which an application, which requires more RAM memory than a computer actually has, can still operate. It is done by using parts of a hard drive's memory as an extension of the real memory, the information being swapped in and out by the operating system, as and when it needs to be accessed by the application.

Virus – A computer program which can replicate itself (unbeknown to the user) in various storage devices and in several places on one storage device. As discs are taken from one computer to another, the virus can be spread to more and more computers. Often, the effect of these programs is to cause malicious damage to data within the computer system.

VRAM – (Video RAM) This is a bank of high speed RAM used to store the information for the

screen display. It can usually (as in the Risc PC) be accessed by the computer's processor and by the video controller at the same time. The computer accesses it as necessary to change the screen display and the video controller accesses it on a continuous basis to constantly generate the signals the monitor needs to display the information set up by the computer.

W

Weight – This refers to the density of the characters within a typeface – e.g. bold, light, extra, demibold, extrabold, etc.

WIMP – (Windows, Icons, Menus and Pointer) A method by which a user can interact with a computer without having to learn lots of special words. It provides a much more intuitive 'view' of the computer and its facilities than non-WIMP operating systems provide.

Winchester – Old-fashioned term for a hard disc, named after the inventors of the technology.

Window manager – This is the official name for the RISC OS WIMP system.

Word – A group of bytes considered by the cpu to be a unit of data. In Acorn 32-bit computers, a word is four 8-bit bytes.

WP – (Word-Processing) – In the early days of microcomputers, word-processing was limited to handling text to create documents. These days, however, many of the programs that are referred to as word-processors can also handle pictures, so the distinction between WP and DTP is becoming less clear.

Writable icon – A submenu into which you can type some information such as a filename.

Write-protect – Open the tag at the corner of a floppy disc in order to protect the contents from being edited or accidentally deleted.

WYSIWYG – (What You See Is What You Get) In the days of text-based word-processing, the screen display would only give an indication of which words would appear on a given printed page but often not much more than that. WYSIWYG describes a system where the screen display shows

the size and positioning of all the text (and graphics) exactly as it will appear on the printed page.

Whetstones – This is a floating point version of the Dhrystones test.

X

XGA – (Extended Graphics Adapter or Array) The definition varies (as well as the name) depending which book you read but it is roughly 1024 × 768 in lots of colours!

Y

Y do we have to have something for every letter?

Z

Zzzz – This is what happens to anyone who tries to read right the way through a glossary like this one!

Sources

I acknowledge, with grateful thanks, the many Archive subscribers who have contributed ideas and definitions for this glossary. I would also like to acknowledge various books I have consulted that have been most useful in compiling this glossary:

Acorn RISC OS Style Guide – Acorn Computers Ltd – 1-85250-148-0

Acorn Risc PC Welcome Guide – Acorn Computers Ltd – 1-85250-143-X

Acorn User Magazine – various issues

Archimedes World Magazine – various issues

DTP at a Glance – Rob Pickering – Bookmark Publishing – 1-85550-002-7

RISC OS First Steps – Anne Rooney – Dabs Press – 1-870336-83-6. **A**

DOS is Different

Mike Tomkinson

(In the Archive office, we rejoiced that the Risc PC, with its PC second processor, went a long way to answering the "non-standard" criticism of Acorn computers. Now we are beginning to realise some of the implications for us. If we are to provide comments and technical information about "Acorn computers", that means that we will have to deal with "DOS" topics to some extent! Mike has offered to start us off and is happy to receive and collate your comments. Ed.)

Many Acorn users will be coming to PC software for the first time in coming months. There will be a variety of reasons for this but the release of the Risc PC and the end of the wait for the PC card will be chief amongst them. The existing PC Emulator is a remarkable piece of software but it is slow and cannot run Windows software. As anyone with a computer probably knows, Windows is the current "big thing" in the PC world.

Before we go any further, perhaps I had better define a few terms for those really new to the world of PCs and DOS. More experienced user might want to skip this section if they feel it is too basic.

Firstly, the term PC – it is short for Personal Computer and has become a generic term for any computer which uses DOS and particularly MS-DOS as its operating system. PC comes from a shortening of IBM PC and dates from their first personal computer released in the early '80s.

These computers used an operating system called MS-DOS, an acronym for Microsoft Disc Operating System.

The story of why IBM used Microsoft DOS and not an operating system derived from the, then, industry standard CP/M is very interesting and perhaps I could re-tell it if anyone is interested.

DOS, as it has become known, is still the main operating system that is used on PCs. It comes in various numbered versions, the current latest version being 6.2.

It is characterised by the dreaded, (to those more used to a GUI or Graphical User Interface), A: or C:

prompt. It has also come to mean the class of software which runs from this prompt. Thus "DOS-based" software is non-Windows software and has largely been replaced by Windows variants.

The general unfriendliness of the A: and/or C: prompt led to the development of a new GUI front end for DOS. This is the (in)famous Windows. Again this comes from Microsoft and the current version is either 3.1 or the newer and more memory hungry 3.11 or Windows for Workgroups.

To the user accustomed to the RISC OS desktop, Windows is a come-down. It is very un-intuitive although, for most users, it is considerably easier to use than pure DOS which is why it is popular.

The use of Microsoft software on PCs is what has made its chairman Bill Gates the second richest man in America.

As an experienced user of a wide range of DOS and Windows software, I would like to share a few experiences and points with those more used to Acorn software.

The first point is that DOS (the operating system) and its associated software, both DOS and Windows-based is very different from what Acorn software. I do not mean that a RISC OS spreadsheet differs fundamentally from a Windows or DOS-based spreadsheet. All spreadsheets will be essentially pieces of software with rows and columns forming cells into which numbers, text or formulae can be entered.

The same point will certainly be true of all other content-free software. A word processor is still a word processor whatever the platform. You know that all word processors have a cut and paste facility and it is simply a case of establishing how this has been implemented in another package that forms the fundamental difference between knowing one package and learning another. That is not beyond anyone, given time and a degree of motivation.

What I mean by saying that PC software is different is that it comes from elsewhere. There are two aspects to this and they have further implications for

both the individual user and certainly for the IT coordinator in any Acorn school.

The first aspect is that PC software comes almost exclusively from the world of business/commerce. An obvious implication of this is that it is not written with children in mind. No-one in their right mind would attempt to teach word processing with WordStar to average school pupils. In fact, WordStar, the early "industry standard" DOS-based wordprocessing package, has been almost completely sidelined by more modern Windows-based packages.

This brings us to the oft quoted phrase of "industry standard". The Risc PC itself is final acknowledgement that some such standard exists but please don't be fooled into thinking in these terms. Industry, or what is left of it, does not have standards – it has habits. The PC and its attendant software may be the current standard but only as a result of inertia and some clever marketing.

If you confront the computer buyer in any large organisation with a patently better product, what will prevent its adoption will be inertia and the fear of not conforming to a mythical standard.

Most Acorn software has educational needs somewhere to the fore. It tends to be easy to use – intuitive. If it is not, it tends not to be popular. This is not to say that it is not powerful – a package should be judged, in part, by the thinness of its manual not its thickness.

A further aspect to this idea of "industry standard" is the price one is expected to pay for software. To be honest, PC software has fallen dramatically in price in recent years – as a result of the same economic forces which have forced most prices down. However, rather like house prices in the South East, they have fallen from very high levels.

The upshot of this is that you can expect to pay much more for PC software than you would for RISC OS software. This applies to both single user and site licence versions.

Let me give you an example. The school at which I am IT co-ordinator, uses PCs on the administration side. This was not my decision and happens even in Acorn schools. The office staff use WordStar and Supercalc. Both are DOS-based, and somewhat past

their best. They now exist in Windows variants but both were very late into the arena.

After careful consideration and evaluation, I recommended a move towards the 1990s and beyond in the shape of Windows-based software. I know it is not ideal, but it is better than DOS for non-computer literates. I am sorry if that sounds either patronising or high-handed but I get paid to make hard decisions.

After further evaluation and consultation, it has been decided to go for Ami Pro and Lotus 1-2-3. Both these are Windows-based and from Lotus. Ami Pro 3 is an excellent word processor with many similarities to Impression Style. Perhaps sub-consciously that is why I like it so much. Lotus 1-2-3 is a spreadsheet and even non-DOS users tend at least to have heard of it because it is an "industry standard".

The pricing structure means that if you intend to buy more than one package it is cheaper (more cost effective) to buy a bundle called the Lotus SmartSuite. This bundle includes Lotus 1-2-3, Ami Pro, Approach (a database), Freelance (presentation graphics) and Lotus Organiser (a smart Filofax replacement).

I may not actually want presentation graphics software but that is not the point – I am also paid to save money where possible.

The above bundle attracts a special education price because some, but by no means all, software manufacturers realise that schools are not generally profit-oriented organisations.

Of course, I want to install it on more than one computer and, being a law abiding representative of a law abiding institution, I realise the need for a site licence. We have approximately 10 PCs used for administration. Thus SmartSuite plus a 10 user site licence (educational) would seem a minimum specification.

The grand total comes to £1533 + VAT = £1801.28. For PC software, that is a real bargain. An actual business would pay much more. It really is no wonder that so much pirated software exists in the PC world. It is simply unaffordable and that is not to condone software piracy, which is totally wrong.

My local Acorn dealer tells me that many IT coordinators are being pressured to introduce PCs on the basis that they are currently relatively inexpensive and that they run "industry standard" software.

This pressure is often exerted by one or two influential Governors via weak Headteachers. I would agree that PCs are generally cheaper to purchase than Acorn computers but the software that makes them usable is very expensive if used legally. As for "industry standard", well, we all have our habits but not all of them are good ones!

The second aspect of DOS being different is that it comes from somewhere else literally – the United States of America. Thus, even the educational software is written with American children in mind.

I cannot think of any RISC OS software which is American. I am not a raging xenophobe but I cannot be alone in supporting the view that the North

Atlantic Ocean is not the only divide between us and that we are increasingly divided by our "common" language. Teaching children to spell properly is more important than slavish notions of industry standards when the standards are not those of this country.

However, and notwithstanding any of my comments above, all is not doom and gloom in the world of DOS. Some excellent software does exist and I hope to cover some of this and other important points in future issues.

Obvious points include the vast amounts of shareware that exist for PCs, the high cost of software upgrades, the memory and space hungry DOS/Windows applications, where to obtain software and what to read to become informed about PCs.

If you have any comments, write direct to me, Mike Tomkinson, 1 Albert Crescent, Queensbury, Bradford, BD13 1PE. (No phone calls, please.) **A**

DTP Hints & Tips

James Parry

James Parry, proprietor of Smart DTP, "Specialists in DTP ware for 32-bit Acorn machines", has sent us a whole set of DTP hints and tips. He admits he has an ulterior motive of drawing attention to his company's products but the hints are helpful, so here they are.

• **Getting organised(1) Fonts** – There are now several applications on the market for managing outline fonts, the leading applications being Easyfont II (Fabis) and Font Directory (LOOKsystems). I've just received Easyfont II, and it's a lot faster and has many new features. (I'm not going to start a font management war as I haven't seen a copy of Font Directory yet.)

If you can spare the cash, you would be well advised to invest in a font management system. The application will help you to cope with the growing number of fonts being introduced so that you can keep track of them and, more importantly, use your collection more effectively. If you can fit all your fonts on one font directory on your hard drive then you probably don't need a font management system yet. Before I used Easyfont, I organised all my fonts

into separate !Font directories such as !Fancy, !General, !Script, !Titles, etc. For those who use a floppy drive system, you will have to make up different font discs using this sort of system.

• **Getting organised(2) Clipart/Resources** – Many people have lots of PD and commercial clipart but is your clipart well-organised? Can you find that piece of clipart just when you need it? A while ago, I decided I would have to get my collection into some sort of order. It took quite a while trying different ways of organising my resources before I decided on my current system which is quick and easy to use.

If, as I do, you tend to hoard software and simply can't bear to delete anything, make a backup of your entire collection of clipart. Once this is done, you can sift through your collection, pruning as you go, with no fear of losing images from your collection altogether.

If you don't have a hard drive, your best bet is to sort out your clipart by topic onto disc. Each disc should concentrate on a single topic. For example, you may have discs dedicated to sport and leisure,

business, cartoons, etc. If possible, use a compression application to maximise space.

Hard disc users have a better option although they can use the method above to keep backups. I store my clipart in an application on the \$ directory called !Clipart. It simply opens a directory, revealing the clipart. It's not exciting and it doesn't do anything fancy but if you want a copy, send for our catalogue disc (see below) and ask for a copy.

My clipart directory is made up of many archives, each archive covering a set topic. Archives or ArcFS archives are the best way of storing clipart on your machine. To give you some idea of the sort of categories that you might want to use, here is my list.

Animals, Arrows, Borders, Buildings, Comms/Media, Computers, Corners, Drawing, Drop Capitals, Flashes, Food, Fun (animals, cartoons, toys, party), History, Leisure/Sport, Logos, Misc, Music, Nature (flowers, insects, pondlife, trees), Objects, Occasions (easter, weddings, xmas), People (famous & anatomy) Speech, Symbols, Think, Transport (aircraft, boats, others), War and World (maps & flags). (Topics in brackets are sub directories.)

Keep the clipart that you use most regularly on your hard drive. Depending on the free space available, you may decide to store some of your collection on floppy disc. Incidentally, Huge Eagle has produced an excellent application called !PicAPic (available from all good PD libraries). It is an absolute *must* for DTP users, allowing you to view a whole directory of clipart at a time and it includes numerous other useful features.

- **Go easy on the fonts and clipart** – One of the biggest mistakes for a DTP user is to use too many different fonts and images in one document. Try to decide on a set of fonts which you are going to use throughout a document. By using a good balance of fonts, your work will look well-structured and attractive yet easy to read. Then, by introducing the right images, the document can be enhanced still further by making it more eye-catching.

- **Ideas** – The more DTP work that you create, the more experienced you'll get. One of the best ways of developing your ability to produce different styles of work is to look critically at the literature you see in

everyday life. Just by observing how other people produce leaflets, brochures, reports etc, you can get ideas for our own work.

- **The right font for the right image** – Typefaces can act as a powerful communication tool, drawing the readers' attention by suggesting what the text is about. For example, an advertisement describing a new product aimed at primary education might well use a primary school font as this would give the reader the image of education and learning.

Because the typefaces that you use can make such a difference to the first impression, it is important that you choose the correct font for each job. As an example, it would be inappropriate to use a decorative font for the titles of an exam paper or a primary school font for the body text of a business report. Decorative and title typefaces are often used excessively.

(As an exercise, can I suggest you look through the adverts in the June issue of Archive? Ask yourself which ones communicate most clearly and then try to analyse why that is so. It's not a case of which advert gets the largest amount of information into an A5 advert but which one "communicates" in the broadest sense of the word. Ed.)

- **Printing and papers** – Unless you use professional imagesetting and printing all the time, the majority of your work will be printed using a desktop printer. It's worth remembering that standard A4 white copier paper isn't always the best medium. Some excellent effects can be achieved by using different sorts of paper to add some variety to your work. You can choose from papers with varying weights, colours, sizes, and types. Shop around for the best deal – you'll probably find that your local paper merchant gives the best choice and price. Viking Direct (0800-424444), offer a nationwide delivery service and have a range of colour, graduated colour and designer papers. The designer papers are pre-printed in full colour A4 pages and are ideal for work that really needs to stand out.

- **Are you Smart?** *(This is the advertising bit! Ed.)* – Last but certainly not least, buy your clipart, resources, fonts & DTP applications from Smart-DTP! We produce our own range of publishing resources which is complemented by the products in

our DTPDirect catalogue. We supply publishing resources from iSV(Exclusive), Micro Studio, Tekoa Graphics, Fabis Computing, Design Concept, Southern Printers, ABC Of Art & Dabs Press. We offer fast delivery which is backed up by a full telephone support service. To obtain our latest catalogue disc send your details with a £1 coin stuck to a piece of card (so it doesn't get lost in the post) to the following address:- Smart DTP, Catalogue disc, 36 Park Road, Duffield, Belper, Derbyshire, DE56 4GR. (0332-842803) **A**

(Other software houses or hardware producers may feel that I am being unfair by publicising SmartDTP's products. First of all, I don't sell their products through Archive, so I cannot be criticised for doing it for my own commercial gain. Secondly, if you have something worthwhile to contribute that you think Archive readers may find interesting, please send it in to me – even if it deliberately draws attention to your own products. I don't promise to publish it and I may need to edit down your self-advertising (as I have done with this entry!) but I will certainly consider your contribution. Ed.)

Advanced Basic Column

Paul Hobbs

Handling choices

One factor that makes a program easy and pleasant to use is the amount of thought given to allowing the end user to configure it the way that he or she wants. A programmer can rarely anticipate exactly how people will use it, so it is a good idea to build in plenty of choices such as the foreground and background colours used for the main work area of a window, whether interactive help will be sent etc.

It is worth considering carefully how to implement this. Normally, a data file containing the user's settings is simply saved in the application directory and reloaded when the program is run, but what happens if the application is being run from a read-only medium such as a CD or a protected partition on a hard disc? This is not as unlikely as it first appears and, in future, this situation is certain to become more common as more CD-ROM drives are sold.

In writing my latest application, I have reached the point where I am considering the choices file and this is what I propose to do expressed in pseudo code (I am, of course, always open to better suggestions!).

```
IF choices file found in MyAppChoices$Path
    THEN
        load choices file
ELSE
    IF choices file found in application
        directory THEN
        load choices file
```

```
ELSE
    create default choices file in memory
    IF MyAppChoices$Path is defined THEN
        save choices file in MyAppChoices$Path
    ELSE
        save choices file inside application
                                directory
    ENDIF
ENDIF
ENDIF
```

This pseudo code shows that the case of a missing choices file is handled by creating a new default one (much nicer than issuing an error message). Also, the first action is to check if a system variable exists which points to the location of a choices file. This allows the user to keep the application itself on a read-only medium, although the disadvantage is that the system variable will need to be set up in the system boot file.

Incidentally, I find that writing code fragments in pseudo code like this is an excellent way of checking that all eventualities have been considered before writing the actual code.

If saving the choices file inside the application directory returns an error, it could be caused by the application residing on read-only media, too many files in the directory or insufficient space on the medium. In any case, the user should, at this point, be offered the chance to save the file elsewhere via a standard save box.

Designing option dialog boxes

There seems to be an increasing trend recently for

the 'Options...' or 'Choices...' menu item to open either a huge dialog box with an overwhelming number of radio buttons or a smaller dialog box which contains a seemingly endless scrolling pane which in turn contains an overwhelming number of radio buttons. I think I am not alone in finding all this rather daunting and it is sometimes not at all easy to gain an overview of what all the available choices are.

In the PC world, this problem has been tackled in a way that I have never seen used on Acorn machines – the 'tabbed' dialog box. In this, a small dialog box opens which contains the first 'page' of choices and a series of icons that look like the page dividers in a folder or filofax. Clicking on any of the tabs opens the next page of choices.

At this point it would have been nice to show a graphic of "a dialog box I designed earlier" but I have to admit that I haven't actually implemented this yet! When I have, I'll share the details with you, but for now I am just presenting the idea as food for thought.

By the way, the Style Guide recommends that the dialog box for option settings should be opened from a menu item called 'Choices...' and should contain four icons at the bottom of the window in addition to the ones that display the available choices. These should be (from left to right) 'Default' (restore default choices set within the application), 'Save' (save the choices as a file called 'Choices'), 'Cancel' (close the dialog box) and 'Set' (apply the current choices but do not save them).

And finally...

If you have any suggestions for topics that could be covered in future issues, I would be pleased to hear from you. What I have attempted so far is (hopefully!) is to provide some thought-provoking suggestions on how better programs can be written in Basic (although many of the topics are equally relevant to other languages). I haven't been exactly overwhelmed with feedback so far, so if anybody wants particular techniques covered, now is the time to write. My address is Paul Hobbs, Rheinpfalzstrasse 2, 85049 Ingolstadt, Germany. **A**

The Spoken Word

Christopher Jarman

Any program that will help to re-enforce reading skills in Key Stage 1 will always be welcome, particularly if it is the kind of self-motivating task which involves the children and gives them a sense of being in control. Wyddfa Software's The Spoken Word seems just to hit the right note. While it is not a painting package as such, it does have many of the attributes of one. It is sub-titled 'Colouring by Words', which describes it well.

The package consists of one program disc and one picture disc containing six pictures between them, with a modest 12 page handbook, all enclosed in a very colourful and attractive plastic wallet. Two other extra packs of picture discs are available, with eight and six pictures respectively, and the handbook contains instructions for teachers on how to make up more picture discs of their own if they wish.

The Spoken Word is far easier to use installed on a hard disc than coping with taking floppies in and

out. In fact, I would think using floppies hardly worth the bother. However, on hard disc everything is straightforward, full directions are given, and should be followed exactly because both Fonts, Sounds and System modules must be loaded properly for it all to work together, for this is, in effect, a multi-media package. Children may learn to read or recognise a fair number of nouns and fourteen colours.

When the first picture is loaded, a vertical printed list of the objects in the accompanying picture is shown down the lefthand side of the screen. If the mouse is clicked on a word, it is spoken clearly and distinctly in a pleasant Welsh male voice! There are picture icons representing an artist's palette, an eraser and a pencil doing some writing. When the mouse is put over each of these, the voice tells you what it is. By clicking on the palette, another vertical printed list appears, this time with 14 little blocks of colour. By picking an object and then a colour with the mouse, that object in the picture will be coloured

in the selected hue. The voice will say the object's name and the colour and finally will say both together. It is very simple to use, very easy to understand and very powerfully motivating. In particular, once children have got the hang of it, they will love to make each other laugh by making pictures of people with blue faces and pink hair, sitting on red grass! In fact, I would not be surprised if some budding psychologist makes up a personality test with this program to check on levels of creativity! Finally, by clicking on the pencil, a small dialogue box comes up for the child to label the coloured picture and save it as his or her own if need be.

Some extra features put this into a very professional class of educational software. Firstly, the voice is very good and has a reassuring ring to it. I checked the pronunciation of path, grass, bath and jumper and noted that it was particularly different from that received in the South of England, and consider that to be an asset rather than anything else. Some research into an acceptable variety of accents in this sort of program might be useful in the future, as children need to get used to them as soon as poss-

ible. It is not something we should ignore. Secondly, there is a "click picture" feature which, when selected, means that just by clicking on the picture of any object, its name will be spoken and you may choose its colour. Thirdly, I liked the fine touch that when any colour is selected, the mouse pointer fills with a minute amount of that colour just to remind you what you have chosen.

A word about the quality of the illustrations. I particularly liked the fact that the artist has chosen to use straightforward book-like drawings which are clear without being whimsical. I realise that this is a question of personal taste, but as children see an enormous number of cartoon type drawings in comics and on TV already, I prefer them to see slightly more realistic drawings in an educational context. There is room for much more good draughtsmanship in this area. Some software art is very bad in this respect, and it is good to see Wyddfa refusing to go down that path.

This is good value at £22 for the main package and £12 each for the two extra picture packs, carriage within the UK and VAT included. **A**

JPEG Column

Stuart Bell

NASA images on a new shareware disc

Philip Draper kindly sent me two discs full of JPEGed pictures which originally came from NASA and found their way to him via Internet and Janet. As promised, therefore, I've put !FYEO2 (see the June JPEG column) onto a shareware disc, filled it up with the best of the NASA images, added a 'thumbnails' file with postage stamp-sized previews of the files, and sent it to Paul for distribution. It is available as Archive Shareware disc number 51. Please remember that !FYEO2 is *true* shareware, and so must be registered if you wish to keep on using it after a two week trial period. (The awaited new release of ImageBank hasn't hit my doormat yet, so its demo version isn't on the disc.)

The NASA images are super, and are from 24 bit-per-pixel originals. Thus, with the right JPEG application (e.g. ImageBank) and the right hardware

(either an A300/400/5000 with a separate colour card supporting 16M modes, or a Risc PC with 2Mb of VRAM) they should produce stunning images. Of course, !FYEO2 will *read* 24 bpp JPEG files; its limitation is that it will only *produce* 8bpp sprites. As the timings for JPEG decompression printed in Archive's Risc PC write-up (7.8 p17) showed, decompressing to 24bpp sprites should be quicker than going to 8bpp, as there is no optimisation of colours to be done.

CD ROM - the JPEG medium

The five images on the new shareware disc total 570Kb, and the disc hasn't a spare sector on it. The benefit of JPEG compression is obvious from their total decompressed size of 2.7Mb, but even so, it's rather laborious to distribute images five at a time. Moving to 1.6Mb discs would help - but only by a factor of two. The 105Mb removable discs offer a hundred-fold capacity increase, but the cost would be 10p or so per image.

Enter the CD ROM, which seems to me to be the ideal medium for picture distribution. I read of a PC-compatible CD ROM 'Space and Astronomy' disc of 1,000 images and 5,000 text files for £24. That's about 10p a megabyte! No wonder that, with the new Risc PC, Acorn have re-introduced 5¼" disc bays, for a CD ROM drive will surely become an indispensable peripheral in the next generation of 'AV' computers.

A new 'discrete wavelet transform' algorithm

Stuart Halliday sent me a cutting from *Electronics Weekly* about a new JPEG-related compression method which "may offer high compression ratios – of the order of 170:1 – while maintaining acceptable picture quality." The article describes work on an adaptive bit-plane run-length codec (ABPRLC) being done at Strathclyde University headed by Professor Tariq Durrani. Even with a Computer Science degree (albeit getting a little rusty) I only just understood most of the account, so I'll simply quote a summary of the results: "The algorithm was tested on a 512x512 image against the JPEG scheme. At a compression ratio of 50:1 both the algorithms reproduced good quality images. At a compression ratio of 166:1 the JPEG scheme produced a very poor image (PSNR – *averaged pixel signal to noise ratio* – of 26.33dB) while the new algorithm reproduced an acceptable image (PSNR of 32.20dB) at a compression ratio of 178:1." In other words, JPEG is no longer state-of-the-art for picture compression, but rather a starting point for new work. The article was published on April 13th for those who want the technical details.

ChangeFSI is better!

In my last column, I noted that, supplied with the new Risc PC, is a whole set of JPEG images, but commented at the end, "*but I must add that Matthew would have been far better off using !FYEO rather than !ChangeFSI for the image decompression (unless, of course, !ChangeFSI is much improved with RISC OS 3.5).*" The good news is that ChangeFSI, the graphics file conversion utility supplied by Acorn is, in its 0.95 version, very much improved. Not only will it accept JPEG files being dragged onto its icon, but it is very fast indeed – in fact, it's faster than !FYEO2! It was brought to my attention by Ian

Palmer, who has written his own "Thumbnail" application for keeping an archive of thumbnail versions of images in a whole range of file formats – of which more later.

ChangeFSI now handles the decompression of JPEG files very cleanly indeed. Part of its speed is due to the fact that in fast mode it totally blanks the screen. Also, the help file says that "the !Run file is set up for colour pictures of around 3000 pixels across maximum, monochrome pictures of around 9000 pixels across maximum. You will need to increase the slot size for larger pictures. ChangeFSI\$Cache can be set to values larger than 128Kb to speed processing. (In particular, JPEG files smaller than the value of ChangeFSI\$Cache will be read much more quickly.)"

I set the wimp slot value in the !Run file to 448Kb as suggested and then tried altering ChangeFSI\$Cache to different settings. Since it's not mentioned in the !Run file, I set it each time from the command line, e.g. press <F12>, and type

```
set ChangeFSI$cache 512K
```

Clearly, this is crucial, for when I tried the "Rock" JPEG file which I used for tests last time, it at first seemed to be slower than !FYEO2, whereas Ian had given me to expect faster decompression. The size of the decompressed "Rock" sprite is 590Kb, from a 136Kb JPEG file.

cache size: 128K time: 54 secs

cache size: 160K time: 29 secs

cache size: 256K time: 29 secs

In all cases, mode 28 (256 colour VGA) was used. For comparison, the time taken by !FYEO2 was 40 seconds, and by ImageBank 130 seconds. Brief comparisons suggest that the output from ChangeFSI is at least as good as from the other applications.

Neither Ian nor I am clear about the status of ChangeFSI. Acorn don't charge for it, but it's certainly not public domain software, so I'm not distributing the latest version. If you do want a copy, ask your Acorn dealer, or perhaps Paul could ask Acorn for permission to put it on the Archive monthly disc? But don't write off !FYEO2. For the

inexperienced user, it still offers greater ease of use over ChangeFSI.

Thumbnail

After my DIY thumbnail system, which I described in the last column, Ian Palmer sent me a copy of his proper thumbnailing system. Its user interface is very much like the ImageBank system, but with a number of differences. First, it's not a JPEG compression/decompression system, but rather a means of storing thumbnail images of graphics files in a range of formats, including drawfiles, Artwork files and, of course, JPEG files. To use it, you simply drag a JPEG (or whatever) file into a Thumbnail directory viewer, and the thumbnail is produced and stored together with information about the original file and its thumbnail view.

Like ImageBank, it offers a filer-like interface with nested directories, and the whole package provides a

very neat way of visually indexing a variety of graphics files. Particularly when used with the latest version of !ChangeFSI, it's pretty quick, too. I encountered just one problem – it didn't seem to like Compression. Even when I made sure that neither Thumbnail nor the files it saw were compressed, it still fell over if a !CFS directory with Thumbnail on it had been opened. Thumbnail is shareware available for a registration fee of £5 from Mr I J Palmer, 40 Birch Crescent, Aylesford, Kent. ME20 7QE. It could be a fiver well spent.

By next time, perhaps I will be able to report on the latest version of ImageBank and on using JPEG files with Impression Publisher – the upgrade has been ordered for a few weeks now. Any further experiences of using the latest version of !ChangeFSI and of the JPEG images supplied with the Risc PC would be appreciated. **A**

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Z-Link II - The Missing Link?

Mark Jolliffe

The Cambridge Computers' Z88 was, or perhaps still is, an under-appreciated machine with many good features, but several shortcomings. The lack of any backup medium and a tendency to crash unexpectedly form a traumatic duo. Fortunately, the Z88 has a serial port, and virtually any computer can be made to receive and store its data, given suitable software. Enter Z-Link II, from The Really Good Software Company.

RGSC describe Z-Link II as "...the most comprehensive implementation of the Z88 import/export protocol ever produced for Acorn RISC OS computers, and it is by far the most versatile". Later, it is described as "...your all-singing, all-dancing gateway to the world of Z88 portability". Oh dear!

The package consists of a slip case with disc, an A5 booklet, and an optional but essential serial lead. It requires OS 3.10 or above (and works on Risc PC) and 1Mb of memory (plus a serial port upgrade on A3000 machines). The instructions for installation and operation are comprehensive, including a drawfile showing the pin connections of both the Archimedes and Z88 D-type connectors for those wishing to make up their own leads. The supplied lead had an unsuitable plug for the Z88; it was too bulky to pass through the latter's case properly, and was of the type equipped with retaining screws, which the Z88 cannot exploit. Plugs that simply fall out of sockets are a complication which one can well do without.

Z-link II installs on the iconbar, and is multitasking. Clicking <select> opens a window at the top of the screen showing the program waiting to receive from the Z88. When a file is sent from the Z88, the window changes to indicate that a file is being received, its size, and its full Z88 filename. On completion of transfer, a further window opens showing the file size again, its type (PipeDream or text), and the opportunity to cancel or save. Selecting save opens a standard drag or click save window, with the Z88 filename as default, stripped of its directory component. Dragging a file either to the Z-Link II window or its icon causes the Z-Link win-

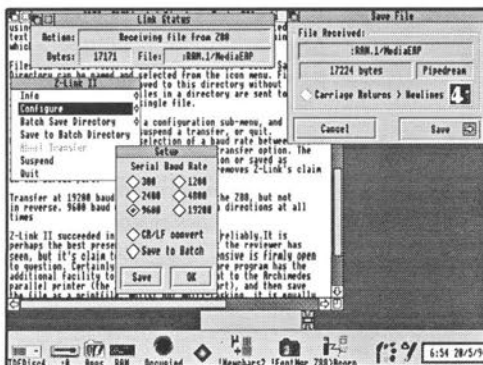
dow to show that it is transmitting a file, its size, and its filename. The file is saved on the Z88 using the Archimedes filename. Basic programs are treated as text files in both directions, but losing top-bit characters and therefore being rendered useless.

Files can also be received and sent in batches; a Batch Save Directory can be named and selected from the icon menu. Files sent from the Z88 are now saved to this directory without user intervention, and all the files in a directory are sent to the Z88 when dragged as with a single file.

The iconbar menu also leads to a configuration submenu, and offers the opportunity to abort or suspend a transfer, or to quit. Configuration involves the selection of a baud rate between 300 and 19200, CR/LF conversion, and the batch transfer option. The selections can be used for the current session or saved as default. The suspension option temporarily removes Z-Link's claim on the serial port.

Transfer at 19200 baud was successful from the Z88, but not in reverse. 9600 baud was error-free in both directions at all times.

Z-Link II succeeded in its tasks neatly and reliably. It is the best presented link program that I have seen, but its claim to be the most comprehensive is firmly open to question. Certainly, there is a shareware program that has the additional facilities of allowing the Z88 to print to the Archimedes parallel printer (the Z88 has no parallel port), saving the file as a



printfile, and it deals with Basic files without corruption. Whilst not multi-tasking, it is equally efficient at file transfer, and costs a mere £7 as against Z-Link II's £24.95. RGSC's timing is unfortunate: by now most Z88 owners will either have bought a link program or abandoned their machine to save their

sanity. Five years ago it would have sold like the proverbial hot cakes.

Z-Link II works with RISC OS 3.1 or later and costs £24.95 inclusive from RGSC. They also do a serial cable for a further £9 inclusive. **A**

10 out of 10 Dinosaurs

Elliott Hughes

It is difficult to think of a more tried and tested topic to interest students of all ages than dinosaurs. This two disc version is intended to be "for all ages". I have tried it with 11-16 year olds of lower to middle ability and my experience suggests that the claim is true. The higher levels on some of the games (such as Raptor) were well beyond my capability, but I am not sure what that says about the 'upper limit'. The accompanying literature is useful and although it contains a number of minor errors relating to dinosaurs and the evolution of life on Earth, these do not distract too much.

I consider myself to be of medium ability and enthusiasm when it comes to dinosaurs and I have to admit that I was not motivated by the level in the games which requires knowledge of the sub-groups to which they belong (e.g. Anatosaurus is a member of the subgroup Ornithopoda). This also stopped all but one of my pupils. There is a list in the booklet of all 96 creatures used but I would have preferred use of the database in the application as a browsing exercise, to allow me to learn some of the properties before I attempted the games.

If the database could be linked with the sprites, it would be even better. I would certainly have liked the allocation to subgroups to have been the highest level in all games. A number of non-dinosaurs are in the list.

Loading instructions are included although none of the pupils that tested the games needed them. We used a variety of machines and the program ran with RISC OS 2 and 3 with 1Mb+. As expected, the A4 could not adequately cope with the scrolling in T.Rex and Lost Island.

The main menu that appears is self-explanatory and provides the option of six different games which

cover many of the standard game formats and appeal to varied tastes. They may be played at different levels, and bonuses are available for rapid selection of correct answers. The games test many of the commonly accepted 'facts' about dinosaur features including size, mobility, diet and many others. Some of these 'facts' are debatable and there are some errors but these do not unduly detract from the appeal and, to some extent, add to it!

In a teaching situation, it is not necessarily a bad feature to have 'errors' in the material. This may be used to develop a critical approach amongst students and allows them to challenge the system. Having said that, it helps if the errors are known to the person in charge of the learning situation. The only major criticism is with the 'Missing Link' game. This includes the strange feature, quickly spotted by players, that not all links are random.

My personal gripe is with the visual representation of the dinosaurs. I had previously bought Micro Studio's Pre-Historic Animals, which is almost exclusively of dinosaurs, and the overall quality is excellent. The 10 out of 10 graphics are obviously limited by their need to be small so as to be incorporated within the games, and I have to admit that my pupils found them acceptable, but I would expect better for educational use.

The response of pupils was, as expected, very mixed. Those with a predominantly 'Nintendo mentality' found some 'boring' (because they require some learning) but others with a genuine interest in dinosaurs, or a more enquiring mind, were more enthusiastic. The second "Wordfit" disc is a very demanding scrabble-like game. This proved to be far too difficult for my students (except at a very simplistic level) as names were generally long and complex, but I found it very enjoyable. We only

managed to crash the program once (on Lost Island).

From the main menu one of six games may be selected. With each game, the number of players, the number of attempts, and the speed at which the game is to be played may be altered. The literature suggests that you start on Level 1 and need a high score to progress. When this happens, you are informed that 'the colour has changed' (as levels are colour coded). If you score particularly well, you may be informed that the 'high score table' has been amended. A permanent record of each player's performance is recorded for access from the Main Menu as 'Player information'. This may be printed out if required. With most games, levels 1 and 2 were immediately available for a new player.

T.Rex

In this game, a pair of jaws may be used to bite a dinosaur whose properties are displayed. The dinosaurs that may be bitten scroll on both sides of the screen. One problem encountered was the selection of time limits for the higher levels. If, having selected a time limit, it was then decided to switch the time off, it was necessary to return to the main menu and start again.

Tracker

Footprints appear across the screen together with clues (the number of which varies between levels). A selection of possible answers is displayed at the bottom of the screen, from which the correct one has to be selected. An incorrect choice leads to another clue being given, but the bonus is disappearing with the time taken.

Raptor

Twelve dinosaur sprites are displayed together with a description which applies to one or more of the dinosaurs. The problem is that the sprites change positions so that, unless you are quick enough, your selection moves before you have time to select it. At the highest levels the changes were so rapid that it was just about impossible to keep up.

Spare ribs

This was generally the most popular amongst my pupils. The object is to stop a row of six dinosaurs' heads reaching food (spare ribs) at the bottom of the

display. The dinosaurs may be returned to their start position by answering a question correctly and then selecting the particular head that you want to be returned to the start. If 'grades' is selected there are two levels plus a 'USER' option. The latter allows selection of the subject matter of the questions. Another facility here is that QFiles inside the application allow you to enter your own questions. There is a Help file displayed when the disc is first loaded which informs players of this option. This particular game caused some argument as several of the 'correct' answers caused concern; such as "Which one can you ride on?" Answer: "A woolly mammoth". Another option claimed that *Diplodocus* was "more dangerous" than *Tyrannosaurus*. But one that is not debatable claimed that the longest dinosaur was 10m long. Although this is (perhaps) unsatisfactory for a game it proved useful in a teaching situation!

Missing link

In this game, boxes containing dinosaurs arranged in two rows have to be linked with other boxes containing descriptions in two upper rows. The boxes may be Open, so that the options can be seen, or Closed so that the option only becomes visible (for a time) when selected. This then becomes similar to playing the card game 'pairs'. As mentioned previously, this game includes the strange arrangement that the top row of features always matches directly (vertically) with the dinosaur sprites. Thus only the second rows of each are random. Once this is spotted, it leads to the achievement of some remarkable scores!

Lost island

I'm not sure why the game has this title. A vehicle has to run over dinosaurs fitting the descriptions displayed. You may move faster using <select> and slower with <adjust>. Steering is undertaken by moving the mouse. 'Overdrive' is available on the game menu. This doubles the speed of the vehicle and allows higher scores to be reached. For the time that this game was tested it appeared that running over the first dinosaur you see was a safe option!

Finally

The main menu includes the option 'Player Information'. Assuming you enter your name each time you begin to play, your Achievement Record is kept.

It is colour coded and 100% on any game turns the corresponding box green. Once one green box has been obtained, a certificate may be saved on a disc and loaded into Paint for printing.

Conclusion

We found the games interesting and stimulating.

Whether they are sophisticated enough for anyone other than a dinosaur fan is debatable. Unfortunately, dinosaurs are not on the National Curriculum so the appeal to schools will be limited.

10 out of 10 Dinosaurs costs £25.95 inclusive from 4th Dimension or £24 through Archive. **A**

The Tekkie CD

Andrew Rawnsley

Ever since Acorn released the Multimedia Expansion Unit, demonstrating their acknowledgement that CD-ROMs were the way forward for mass storage, we have been awaiting the release of the Programmer's Reference Manuals (PRMs) on CD. After all, the original volumes were so large and comprehensive that they really needed a bookshelf to themselves! Wouldn't it be nice to have all those sheets of paper replaced by circular disc 12cm in diameter and 1mm thick?

Well, it's here, and not only does the Tekkie CD contain the RISC OS 3 PRMs, but it also contains the Style Guide, Basic Guide, Desktop C, Assembler and DDE guides, all for the same price as the paper PRMs – £99.

Access

The Tekkie CD has been designed with expansion in mind (a bit like the Risc PC really!). The whole system is driven from a disc-based application called Librarian which manages which books are open etc, and each book is loaded in as a file from the CD. This can be a little fiddly to begin with, but you soon get used to it.

Once loaded and opened, the books look exactly like their paper counterparts, right down to the blank pages in the original. This was prescribed in the licensing conditions from Acorn, who have given the product their seal of approval.

The index and contents pages can be viewed immediately by clicking on the appropriate control buttons mounted on the lefthand side of the book's window.

This toolbar also allows access to Librarian's manual which comes as a 'book' on disc.

Product requirements

The immediate problem most users will meet is that the books require a lot of screen space. A multisync monitor is virtually a necessity, and it really should be in mode 31 (800×600 in 16 colours) which is the highest built-in mode for RISC OS 3.10. This is feasible on an old Acorn multisync, as supplied with the A5000, but many VGA monitors cannot cope with this mode. Although you can use it in the standard mode 27 (640×480 resolution) you'll need to scroll up and down a lot.

2Mb of RAM is also mandatory, because the Librarian application eats up 1024Kb. Since all the words are rendered in outline fonts (just like the paper versions) an ARM 3 is helpful.

The product certainly lives up to its name – you would need to be a Tekkie if you can meet the above requirements!

The content

The material in each book is exactly the same as in the Acorn originals, right down to the illustrations. However, I did experience some problems with the pictures appearing in the wrong places, particularly in the Style Guide. Also, the nice anti-aliased text occasionally reverted back to the system font. These are just small niggles, but had they been removed, the product would have felt a little more professional.

The CD version does have advantages over the paper version. Firstly, wherever the original had a page or subject reference, it is now highlighted in green, and a double-click over the text will transport you to the reference. Naturally, this facility is also implemented for index and content page references. A click on the Back icon will return you to where

you were before. This icon will take you back through all the pages you've viewed right back to the contents page – a bit like an infinite undo!

The second advantage of the CD version is that you can conduct a search on all the information just as you would in a text file. However, due to the slow nature of the searches, and the presence of indexes, you are unlikely to use this option regularly – the search rate is about 1½ pages per second.

Usefulness

As I have tried to make clear, each CD book is very much like a paper book – you can even insert bookmarks into pages and save the bookmarks out! However, many people prefer to read from paper than from the screen. Unfortunately, no printing facilities are available at present, although the authors – Emerald Publishing – are considering a Print One Page option for the future. This would not threaten Acorn's profits on the paper versions because at 4p per page, the 3000+ pages of the PRM will cost a lot more than their street price to print out!

However, at present you can add and save notes to each page, giving some of the advantages of a paper copy.

Conclusions

There is certainly no doubting that this CD is excellent value for money – the documentation on this one CD would cost about £150 if bought separately, and here it is for £99 complete with the added advantages of the computer version. The difficult question is whether you would still need the paper versions for practical use.

Personally, I think I probably would. I say this because the computer versions are so demanding on the computer.

As a software developer, I would claim that you need at least an 8Mb machine to have enough memory to use the Tekkie disc as you would a paper copy, and probably an ARM 600+. This is because the page redraw time is still slow on an ARM 3, so it makes flicking through the pages searching for the appropriate OS_Byte call almost impossible. A monitor of at least 17" would also be useful.

Having said all this, the Tekkie disc does represent great value, and it's really up to the user whether he prefers paper or pixels.

The Tekkie Disc costs £99 +VAT from Emerald Publishing. **A**

ColourFun

Christopher Jarman

ColourFun is a collection of child-centred clipart, obtainable from SmartDTP, which gives access immediately to 56 coloured drawfiles and their 56 outlines, should you wish children to colour them in themselves. It comes on one standard disc so the memory use for each clip is pretty low.

The items are all the kind of thing that one would expect of a collection aimed at Primary schools; a clown, clock face, football, teddy, kite and so on. There is nothing too disturbing or original. A great deal of fun can be had, however, by dropping and mixing the pictures into almost any WP or graphics program. For children to learn to use pictures, by enlarging, distorting or combining them, it is useful to have a good variety of pictures to work with. While the ideal may be always for them to produce

their own, even professional artists sometimes like to manipulate other peoples artwork!

These clips, although childlike, are professionally designed and very attractive – in the general comicbook style now widely associated with clipart.

They look good dropped into Artworks and combined – you can make sheep appear in space, or a huge rainbow engulf a house! The ability to play about with relative scale seems to me to be one of the most creative ways for a child to use computer graphics.

Such an eclectic group of images could be very useful in writing stories in Genesis, Magpie or Optima format, whether by the teacher for a class, or by the children themselves. You are reminded in the manual, however, that piracy is theft, and copy-

ing is illegal. A notice on the disc reminds you that it is not public domain, so be careful to whom you pass on any resulting programs! It does make me wonder just to what purposes any really good program using these images might be put? Perhaps a letter of enquiry to Smart DTP would produce results.

The manual does make several good suggestions for making scenes, and encourages users to contact the manufacturers with good ideas for ColourFun 2. My

suggestions would be to include some grittier images next time, perhaps some more ethnic minority inspired, more geographical, and more technical. After all, five-year-olds are very machine literate today. I would also make a plea to allow the pictures to be copied and distributed freely in any genuine educational context, even commercial ones, providing credit for the source was always given. With these points in mind, I recommend ColourFun as good value for money at £14.95 inclusive. **A**

Number Tiles

Denise Bates

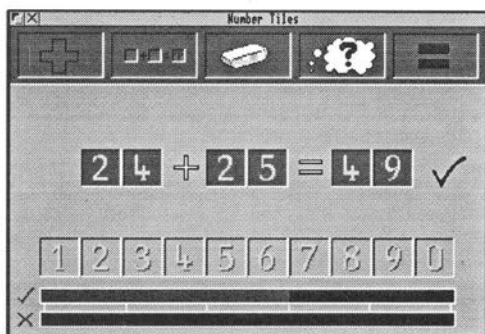
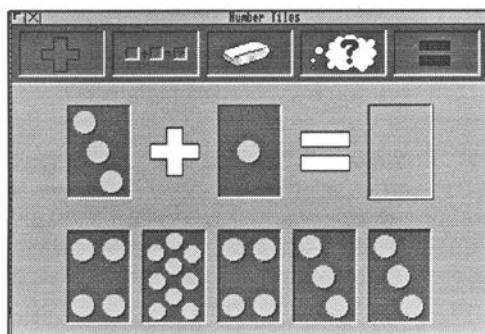
Number Tiles from Topologika is designed to develop number skills up to the number 99. It is applicable to National Curriculum levels 1-4.

The review was carried out on version 1.0 of Number Tiles using an A5000 (RISC OS 3.1) and an A3000 (RISC OS 2).

Manual

The supporting manual has twenty pages and is easily understood by those who are not computer literate. It explains precisely how to perform any function with the software and gives hints and tips as to how to get the best out of the program. I learned a lot about the program by a careful reading of the manual before I started to use the software.

The manual itself appears to have been photocopied from masters produced on a bubble jet printer. This makes the clarity of some of the diagrams a bit fuzzy, but they remain more than adequate for the purpose and are not likely to trouble the user.



Loading Number Tiles

After completing the initial registration procedure, Number Tiles loads easily. Opening the window from the disc drive displays two icons, one of which is !NumTiles. The other, !BigPoint, is a public domain utility for which no charge has been made. Clicking on this icon makes the pointer much larger than usual. This is useful for small children to help them acquire mouse control.

Four levels

At level one, children are offered addition and subtraction up to ten, using pictorial representations for the numbers. Four designs are provided. Of these, the one of a fish with bubbles coming out of its mouth caused initial confusion, as it was not immediately obvious that it was the bubbles and not the fish which were the tokens to be counted.

Level two provides the same range of exercises as level one but with recognition of number symbols rather than counting objects.

Level three extends to twenty and introduces multiplication whilst level four extends to 99 and introduces division.

Using the program

The package can be used from pre-school to middle junior and, as children develop competence in using the mouse, minimal teacher supervision is required. The program has a very intuitive feel to it and children are soon familiar with what to do. The idea is to complete a sum by entering the missing figure or figures. Tiles of all numbers are available at the bottom of the screen and they have to be entered correctly into the answer box to complete the sum shown higher up the screen. Manipulating the number tiles is done exclusively by the mouse, either by dragging or double clicking. Initially, some children were surprised that input by the keyboard was not possible but soon accepted the mouse as a great way of input.

The number tiles themselves are large and very clear. This, together with the large pointer and the option to double click on tiles to move them, gives the program great potential for being used in a remedial capacity and for certain types of special needs as well as being valid in the mainstream from a very young age.

Operating Number Tiles

The teacher has a great deal of control over the configuration of Number Tiles. For example, it is possible to select the number of questions to be attempted by the pupil, the format of the equation, the number of tries and whether pupils are to work against the timer. It is also possible to leave the desktop and run the program across the whole screen. Topologika recommend this approach as it means that children do not have the ability to access the iconbar and perhaps change the settings.

With older pupils, I am not sure that I completely agree with this philosophy. Most regular computer users learned their skills by experimentation. My seven year old was quite capable of configuring the program for himself and I think the straightforward configuration options provided by Number Tiles could provide a good opportunity to introduce wider aspects of information technology into the classroom.

Strengths of the program

In a classroom environment, the opportunity to turn sound off has to be a plus. I also liked the fact that it is possible to specify the number of questions each pupil is to be allowed in a given turn and to be able to print out the results.

The restart sequence for each new turn is activated by clicking either on a set of traffic lights or a "click here to start" box. This makes the program very good for use in a classroom situation where the teacher wants each child to have an individual turn, perhaps leaving the main lesson for a few minutes one at a time. Each child can start their own turn rather than the teacher having to reset the computer. Many teachers of younger children found that the need to keep resetting some of the earlier desktop type programs was a disincentive to use.

Weaknesses of the program

Number Tiles has no serious weaknesses although I was not convinced of the benefits of the timer option. On lower levels, it is frustrating for young children to work out a correct answer but see it marked as wrong because they were out of time. On level four, options which involve working out and entering four digits can leave numerate adults out of time. The greatest benefit of the timer is with older pupils on multiplication and division exercises where speed practice in tables can be gained.

Ancillary aspects

Number Tiles allows the user to define and save his own tiles using Paint. This considerably extends the versatility of the program both for pupils as class-work and teachers for lesson preparation. The manual has several interesting suggestions on this theme for a keen teacher who has a grasp of Paint.

Conclusion

Number Tiles is a very competent, well-designed, child-friendly program. My own children were very taken with it and tested it extensively at home for several days. I also noticed their understanding of number bonds increase during that time.

I can recommend any school looking for a straightforward counting program to consider this one seriously. The topics covered will remain relevant to

the curriculum for a number of years and the straightforward approach to them cannot be faulted.

Number Tiles from Topologika costs £30 +VAT (or £33 through Archive). It is also available with a site licence for £55 +VAT from Topologika. **A**

Personal Accounts v3

Mick Burrell

Having used version 2 of Apricote Studio's Personal Accounts program for some time, both for my own bank accounts and as treasurer of the local tennis club, I was eager for version 3 to be released. When I acquired an A4 and increased my data's portability, it became vital – PA 2 uses a mode 12 screen and those that have seen a mode 12 display on an A4 will know what I mean!

The software arrives!

I was promised a launch date to coincide with the Harrogate show and, sure enough, a couple of days after the show, the smart white pack containing ring bound manual and single disc arrived. The disc has to be initialised with your name, and a card returned to Apricote with your serial number so that you can benefit from their excellent technical backup, although I suspect that you will find little to query. The disc can be copied to a hard drive and, unlike some software houses, Apricote are happy for me to use my copy on both my machines without further payment. Version 2 files are converted automatically to the new format, though if you have a *very* early copy of version 2 which used 'data' rather than the 'Personal' file type, then this needs to be changed before version 3 recognises it. With RISC OS 3, you just 'set type' to 'Personal'.

I have been using Personal Accounts on my A440/1 with ARM3 and RISC OS 3 and, to a certain extent, on my 4Mb A4, but I am told it should work on a 1Mb machine.

An overview

As the name suggests, Personal Accounts will look after all your bank accounts unless, that is, you have more than sixteen! The way it works is to categorise all your income and expenditure under headings. It doesn't work with credits and debits as some find them confusing – you can set up to 92 different sources of income (I should be so lucky!) and 92

different categories for your expenditure. These are set on four pages (each) of 23 headings numbered from A1 (the first on page 1) to W4 (the last on page 4). You then decide what each heading will be called. For example, income heading A1 is my salary and expenditure C1 my motoring expenses. I'll no doubt find something to put on pages 2 to 4 soon! For the tennis club, I am able to give a very detailed breakdown of our income and expenditure. Usually, an income will come *from* an income heading and go *to* a bank account. Payments will usually come *from* a bank account and go *to* a payment category. In this way, you can see at a glance how much income you have had from a particular source (your salary?) and how much you have spent on, for example, your hobby.

Naturally, it copes with standing orders; and this with great flexibility over intervals of payment. All bank account balances are shown in the 'Accounts' window. The statement balance, the current balance and the balance at a time in the future after all standing orders have been deducted, are all shown. This 'Forecast' is as useful as it is flexible. I use it to show what the balance should be at the end of the month, but it is equally possible to continually show what it will be in seven days time.

An 'Undo' and 'Redo' feature is included allowing you to step forwards and backwards through your work. There are facilities for producing reports which can be printed or dropped into 'Edit' for screen display. These can, of course, be tailored to your requirements, and there is even a facility to remember five of the most frequently used layouts.

Transactions that are often repeated can be entered in the 'Preset' section, and then a single keypress enters all details. For example, when I buy petrol, the money comes *from* my VISA account *to* my car expenses. I enter the date and, with the cursor still in the date field press 'C' (the preset I have chosen) and the program automatically fills in VISA (where

it comes from) CAR EXPENSES (where it went) PETROL (as a description) and, finally, waits in the amount column for me to type it in. (Version 4 will probably be psychic!)

The software in detail

As with most current software, many actions can be achieved with either a function key press or a mouse click, and the program can be configured to start with your preferred setup. When you double click on a Personal Accounts file, the program loads onto the iconbar with that data file loaded. The display will depend on what you have set from the options menu when you previously used or first created the file. You have the choice of just the main menu open or all the windows you had open at your last save, or of course none. If you get into a set pattern of using the program, having it load and open the windows just as you left it is a great feature. You then have the choice of whether you save every few minutes (with or without prompt), or whether to save on exit. Other options include drag and drop set-ups, what character to use for reconciled fields, sorting of standing orders, paper sizes and, naturally, a password to keep out the unauthorised.

The bulk of your usage will be in the Entries window where there are many changes from version 2. There are still columns for date, from and to, amount, reference and description, but the reference column is a bit clever. If your description in version 2 started with the cheque number, (no separate reference column was available) then version 3 will automatically load it as a reference, leaving the remainder as the description. It then increments the reference by one every time you make a payment from that account, even keeping track of the next cheque number for each of the accounts you have!

Sorting entries by date order can now be left until you are ready instead of always being automatic. The search is also much improved, as it no longer alters your search string! If you enter 'Smith' in the description box, click on 'Find First' and it finds 'J.Smith', then clicking on 'Next' will still leave it looking for 'Smith' as it should, not 'J.Smith' as in version 2!

Reconciling bank accounts has also been made much easier by the search. Enter the number of the

account (e.g. 1) in the search area of both from and to and by clicking on 'Find First' and then 'Next', it will cycle through all unreconciled entries for that account. You can mark an entry as reconciled with a mouse click – look no keyboard! If only I could control my mouse with one hand and tick entries on my bank statements with a pencil in the other!

The income and payment heading pages give the current totals in each category and, like all sections, are updated the instant you enter a transaction. There is also the facility to enter a budget amount, in which case you are also shown 'Budget – Current' i.e. how much you still expect to spend or receive.

Standing orders are set up by entering a payment date, how many have to be made and how frequently. Payments normally made on 30th of the month will automatically be made on 28th in February. The Standing Orders page now shows how many have been made, how many are left to pay and when the next is due for each one, saying 'Finished' after the last payment. There are two ways of resetting a finished standing order, one which leaves most of the entries filled so that you just alter the relevant part. For example, your Council Tax bill will probably be made from the same account each year, and it will only be the amount which changes, no doubt reducing as your council improves its efficiency!

Finally, there is the reports section. As already mentioned, the 'Reports 1' window allows five different report styles to be remembered, each of which offers control over start and finish dates, single or ranges of categories or bank accounts to be included and a summary option to give a breakdown of the transactions. These can be included or not as you wish and the results printed out via either a RISC OS driver or direct to your dot matrix using its own internal font. You can also export the report as a file, either text, CSV or a new Personal Accounts file. 'Reports 2' offers basic summary reports to allow you to print out your bank accounts, standing orders etc very quickly.

In conclusion

Having used previous software from Apricote, and with this being the release version, I was not sur-

prised that the software performed faultlessly with no hint of a bug or crash on either machine. This review was written in Impression Style with Personal Accounts running alongside to check detail. Again, neither program had any problem. In the manual, the author says that version 3 has been completely re-written with the help of owners of versions 1 and 2. This shows. This is a program which has 'developed' through use into an excellent bank account control system. If you tried to find a home or club banking program which was either more capable or easier to use, I doubt you would succeed on either count.

I tried not to make this just a list of features, but I could not find anything which I considered badly written or even just not too well thought out! The author begs you to read the manual, but I suspect that version 2 users will be instantly at home with no further help. Indeed, anyone used to RISC OS will find that, with a little help from !Help, the learning

time will be impressively short. I have however, managed to think of something I wish had been included! It would be useful for me to be able to group certain headings together so that I could have, for example, headings for petrol, servicing, and repairs, each with their own totals, but able to group them together to give a total for car expenses automatically. But then I can easily achieve this (not quite so automatically) by dragging the individual totals to the calculator, by setting up a report to include that range of headings or, as most of my headings are on page one, use another page to just contain the group I want as each page has its own subtotal. Perhaps I shouldn't complain! That aside, this has to be the bench mark bank account software for RISC OS.

Personal Accounts is available direct from Apricote Studios for £49.95 inclusive or £47 through Archive. (As an upgrade from version 2, it costs £29.95 from Apricote.) **A**

Basic Programmer's Toolkit

Paul Hobbs

The Basic Programmer's Toolkit (v1.00) consists of nine desktop utilities which can be used to develop any Basic program. Also supplied is a desktop menu program for displaying information about or running the programs and a library of Basic routines.

BasPrint 2.20

This is a printer driver for Basic programs. It can print a range of lines or the whole program in multiple column format in any font supported by your printer although the necessary control codes need to be entered in a dialog box (an Epson settings file is supplied). This application is very useful for producing neat listings although it does not multitask while processing.

Unfortunately, it is not possible to print to a file, which would have been handy for formatting blocks of code for inclusion in DTP documents. As the !RunImage file is in Basic, however, this should be relatively easy to add.

This application (despite what the documentation says!) does not check if the printer is online and will

cause a system hang if data is sent to the printer while it is offline.

LibMgr 1.04

This is a manager of library routines that can be appended to an existing program. Documentation for each of the routines can be written as a separate text file and displayed. Obviously, a certain amount of discipline is required to document the routines as they are added to the library, although around 50 routines are already supplied and documented.

BasHelp 1.00

This is simply a front end to the RISC OS 3 Basic 'help' command to display the built-in help information on Basic commands. This application works well, except that clicking in the main window can cause a non-fatal error ('subscript out of range') which is surprising – also the help you actually get is rather terse.

SWIMgr 1.00

This converts references to SWIs in a program to either numbers or variables to speed up execution. It also does the reverse process which is useful for de-

mystifying other people's code. The Print option doesn't check if a printer is online causing a fatal hang of the system so there is a danger of losing data in other applications. The list of SWIs is interesting and quickly produced but is of limited use – knowing the SWI name doesn't tell you how to use it!

If you choose to convert an existing program there is a short pause while the program is processed and then the program can be saved in the usual way – although dropping the file icon back onto the SWIMgr window causes a non-fatal 'Data transfer failed: Receiver died' error message.

BasFormat 1.00

This application indents programs, and splits up multi-statement lines which is good for untangling other people's code or programs that have been crunched to save space. It is rather slow with large programs but at least it multitasks while processing.

BasCrunch 1.00

This is a front end to the RISC OS 3 Crunch command which is quick with several options such as removal of REM statements and extra spaces. However, as variables and FN/PROC names are not shortened, the compression that can be achieved is limited – but this is the fault of the Crunch command, not of BasCrunch.

BasDiffer 2.00

This is potentially very useful in that it creates an obey file consisting of the differences between two Basic files. This would be useful for sending out updates of programs or for checking whether two files really are the same. Unfortunately, I didn't have much luck with this application as the data is stored in memory blocks DIMensioned within the program. This means that editing of the !RunImage and !Run file was necessary before it would process the (admittedly large – 180Kb) test program and when it did work, it created an obey file of over 70Kb when the actual differences amounted to 7Kb.

Processing of my chosen test files was also slow and not multitasking, although performance with small files (around 5Kb) was practically instantaneous. When used within its limitations, BasDiffer is a very useful program but I would prefer something which ran faster and handled large files in a better way.

BasAnalys 1.00

This creates a report of FN/PROCs contained within a Basic program, giving details such as how many times each is called (if at all!). The only problem here was that FN/PROC names over 23 characters were unfortunately truncated! Routines that are called but not present in the program can be listed, which should ensure that all necessary routines have been included. Redundant routines can also be listed although they cannot be automatically removed.

This application should prove useful for authors who develop programs using standard libraries and who want to combine all the routines into one program for distribution as one can be sure that all necessary routines (and only the necessary routines) have been included.

BasMonit 2.00

The purpose of this application is to view a Basic program in memory, rather like the *DUMP command for disc files. However, the program can also be viewed in a 'decoded' format where the Basic keywords are decoded and also appear highlighted. This application would be very useful for developing other applications that either write or modify Basic programs to check the format of a Basic program in memory – which is probably exactly why it was written.

The display may also be printed out and a check is made in this case if the printer is actually online before printing.

Conclusions

There are some potentially useful applications in this package but some have problems which reduce their usefulness in my view. I think that all of the applications would have benefited from more testing and attention to detail, such as working printer detection in some cases. However, none of the problems is serious and as the programs themselves are written in Basic, they should be easy enough to modify.

The Basic Programmer's Toolkit is available from Risc Developments Ltd. The price is £15.28 (£12.72 for Risc User subscribers) +VAT + £2 carriage. **A**

ARM Programming Part 3 – Scrolltexts

There are almost as many scrolltext routines as there are demos. The more pedestrian simply slide text across the screen whilst complex ones may roll the text along a sine wave. The first thing to consider is what you want your routine to do.

Last month I described how the screen memory is mapped onto the various positions on the monitor. This article is based on the assumption that the program will run in mode 13. In essence, going one pixel across means adding or subtracting one and moving vertically means subtracting (up) or adding (down) 320. We want our text to go horizontally from right to left so we will have to subtract from a counter. When dealing with scrolltexts, a decrement of 4 rather than 1 will give a good speed.

If we take the position to plot at as being x pixels from the left of the screen and y pixels from the top, the memory address can be calculated by using:

address = screen base + x + ($y * 320$)

To implement a scrolltext, we need two registers. One points to the letter currently being plotted and another holds the position of the letter on the screen, called *textptr* and *offset* respectively. (You can add up and down movement as well which requires another register.) The method I am using here cheats slightly in that you plot a blank space either side of the screen but the alternative involves a more complex plot routine.

Frame Number	Distance from left of screen						
	8	16	24	32			
0		A	B	C	D	E	
1		A	B	C	D	E	I
2		A	B	C	D	E	F
3		I	B	C	D	E	F
4		B	C	D	E	F	

Offset starts off equal to 8 with *textptr* pointing to the letter A. *Offset* goes down by two every frame until it reaches 0. Alert readers will notice that this situation is the same as having *offset* equal to 8 and *textptr* pointing to B. The following letter's positions can be obtained by adding the width of the letter to *offset*. You can summarise this in the following pseudocode where

width is the width of each letter in pixels

speed is the scrolling speed in pixels

startofstext and *endofstext* hold the address of the two ends of the message

numletters is the number of letters that you want to display on screen

xpos is the horizontal distance from the left hand side of the screen

```
for textptr = startofstext to endofstext step 1
  for offset = width-speed to 0 step speed
    for xpos = offset to offset + width *
      numletters step width
        plot letter at xpos
    next xpos
  sys "OS_Byte",19 :REM wait for screen
                    update to finish
  next offset
next textptr
```

Note that *offset = width* duplicates the same position as *offset = 0* so it is not included in the loop. The plot letter routine will depend on the value of the variables used.

A rolling scrolltext as seen on Hugo Fiennes' demos four and five can be coded by providing a lookup table of heights at different points of a sine wave:

```
DEF FNtable
FOR K%=0 TO 360*4
[OPT pass
EQUB 128+64*SIN(RAD(K%/2))
]NEXT K%
= ""
```

The value 128 gives the position of the mean of the sine wave and the 64 is the amplitude. These are both reasonable values for mode 13. Next, you need a pointer to the base of this table and if you want the

sine wave to roll, you need another offset. These will be known as *tablebase* and *sineoffset* for obvious reasons. Every frame will advance *sineoffset* to alter the portion of the sine wave which is currently seen. As soon as *sineoffset* has moved one wavelength along, it can be reset to zero. The size of the table must be no smaller than 320 plus the maximum value of *sineoffset*. The original pseudocode can be modified to give:

```
sineoffset = 0
for textptr = startoftext to endoftext step 1
  for offset = width-speed to 0 step speed
    sineoffset = sineoffset + 1
    if sineoffset >= wavelength then
      sineoffset = 0
```

```
for xpos = offset to offset + width *
                                numletters step width
  load ypos from address (tablebase +
                                sineoffset + xpos)
  plot letter at (xpos,ypos)
next xpos
sys "OS_Byte",19 :REM wait for screen
                                update to finish
next offset
next textptr
```

I hope that this gives some idea of how to write the kind of scrolltext routines you see in 'proper' demos. An example of a rolling scrolltext is included on this month's magazine disc. **A**

Almanac 3

Andrew Rawnsley

Almanac 3.00 was released in November last year, so you may wonder why this review has taken so long to appear. Firstly, the review version is now in 3.06, and has a manual! The other, and unfulfilled, reason is that I was hoping to compare it with ExpLAN's long awaited Occasion information manager.

Readers may also note the change from the phrase 'desktop diary/organiser' to the above 'information manager'. This has been made to fit in with Stallion Software's (Almanac's publishers) publicity claim – Integrated Information Manager (I²M). Why can't product descriptions be simple to understand? We can all cope with the idea of a diary or a filofax, but I²M?!

Packaging

Almanac 3 has shed its once restricting filofax packaging for a more conventional video style plastic box.

The new box allows space for a fairly thick A5 manual, running to 85 pages. The manual is rather cheap and cheerful considering that this is claimed to be 'the most important product since Impression'. It looks as if it has been printed on A4 sheets of paper straight out of the laser printer and through the photocopier, crudely folded and stapled. I could have coped with that but the content of the manual

is sketchy, as are the diagrams! Such a complex and powerful program as this requires a superb manual – maybe Stallion ought to hire Computer Concepts' manual writers?!

The software

The software itself comes on one disc which also contains a copy of !StrongHlp which is used to drive the interactive help. This is quite a life-saver given the poor manual. It is certainly useful to have some context-related help for beginners, because the tutorial (one of the good points of the old manual) has vanished.

This help is available via the standard Info dialogue box, and as an option from the iconbar menu. Strong Help is then loaded automatically.

Various examples are included on the disc as a demonstration of Almanac's versatility, and these could also help new users.

New features

You will forgive me if I don't go into depth on Almanac's old features which were reviewed previously. (Archive 7.2 p 51)

The most obvious changes are the introduction of 3D buttons for RISC OS 3.1 users, resizing of the icons for the proportionally spaced fonts of Risc OS 3.5, and an accounts section for recording financial transactions.

This doesn't offer any of the advanced features of applications like Prophet, but it is none-the-less quite useful. Despite not being 100% intuitive, it may provide many users with as much financial recording as they will ever use on computer, although budgeting and such-like are not implemented. It can handle standing orders, and the whole process is constructed around stored, dated statements. You can store multiple statements, each containing various transactions.

Drag and drop of records, like file icons in the filer, is implemented here as it is virtually everywhere else.

The sticky pad now allows items to be given a cost, so project costing can be achieved. The address book has also been enhanced to cope with fax and e-mail numbers via special icons. There are direct links to Computer Concept's 'Fax Pack' expansion card, and David Pilling's 'Arc Fax' fax modem driver. This saves time when looking up numbers – there is no need to re-type them.

It would be fair to say that most areas of the software have been modified in some ways to improve their functionality, but I still have some reservations.

Problems

An important omission (and one that is to be found in most products of this type) is that only UK style post codes are catered for. This means that they always come after the county, rather than with the town as is the case elsewhere in Europe and overseas.

Although the authors claim that you can press <F3> anywhere and save your work, the address book requires you to add the record or click on OK before saving can occur.

There is still no alarm function for appointments, but now that it has a 680Kb memory requirement, you are not likely to have the application loaded all the time!

Design

I also think that the program still feels as if it has been designed by a programmer. The operation is not really intuitive, and the icon layout is poor and aesthetically displeasing. It is worth noting that most PC development teams include dedicated artists for

icon and window design. Certainly Acorn teams should aim to have at least one person with some artistic experience involved.

The Almanac windows seem to bristle with buttons and icons, which can be daunting to new users who just want a simple interface so that they can get started quickly. Another point worth noting is that the category icons, used in virtually every Almanac window, are drawn in low resolution screen modes, in only 16 colours. The latter may not be too important, but with the amount of hi-res monitors around these days, the blocky mode 12 icons make the software look rather crude.

With the huge resolutions available on the Risc PC, I feel that developers should produce high resolution icons instead – at least this will cater for the majority of professional users at whom Almanac is aimed.

The business angle

Most business users will probably not be too concerned with storing birthdays and wedding anniversaries. Personally, I have found that the address book and its links to be the most useful. All users need to store this kind of information, and it is particularly valuable in research, sales and marketing, and report production.

Almanac's links to Impression, although not stunning, work effectively, and can be a boon when producing contact lists or drawing up contracts.

The sticky pads are also useful here for managing related documents and graphic images from all over your hard disc. The appropriate quote could be in your 'Quotes' directory, and you may also have a separate 'Invoice' directory. The relevant files can be merged into a sticky pad from where you can simply double click to access your files.

Conclusions

Almanac is a very competent information manager, but is let down by a poor manual and a complex and graphically displeasing interface.

I shall certainly be using it for the time being, as there is really no competition in this field. However, with products on the horizon from ExpLAN and, at some point, Rheingold Enterprises, I shall be keeping an eye on the market.

If you can put up with the interface, Almanac 3 offers unrivalled control over correspondence, appointments and other events. The address functions will be particularly useful for business users, but the accounts section is a little limited.

Almanac costs £85 including VAT from Stallion. Upgrades from version 1 are available from Stallion for £17.62, and the optional filofax retails at £23.50. **A**

SmartDTP

Gabriel Swords

SmartDTP of Duffield, Derbyshire have come up with a collection of borders and clipart presented to you in either Draw or Artworks formats.

Each collection can be found on one disc inside a neat looking mini video cassette box. Also in the borders box is a really useful booklet with all the designs laid out in groups. This means you can browse through the booklet looking for the border you want rather than having to open every file.

Borders

Just when you thought you had the definitive set of borders, out comes another collection. Just how many border designs can there be, I ask – presumably as many as designers can think up.

The two Smart sets are more or less the same, the only difference being the way they are put together. Smart Borders 2, for example, are the kind you drop into Impression documents – there are about 200 of them. Smart Borders + contain fewer designs, about 150, and they have been turned into complete boxes for you.

As with all border collections, there are going to be the ones you will use a lot, and ones you will never use at all. Even though some of them will be similar to ones you already have, these borders are worth considering because the quality is good and the price isn't extortionate. There are probably enough new ones to make the collection worth having – for example, I bet no one's got a bone or a Union Jack border in their collection!

There are square corners, round and curved corners, triangular corners, lines with arrows, lines with stripes, lines with lines. There are fun ones, ornate ones, even colour-shaded ones. You can make a clipboard, a computer printout, a Christmas border with holly or a talkative one with quotes.

One thing to watch out for with the Impression type borders is that because some of them are so big, you sometimes have to dramatically resize the frame to get the whole border onto the page. That then reduces the amount of space you have for text.

Tip: The way round this is to create another frame on top of the bordered frame and set view to transparent. This frame can then be resized right up to the edge of the border and text typed into it.

One style that isn't in the collection – or any of the collections I have – is a dotted line that uses round dots. There are plenty of dash type lines but none of the round ones. Has anyone ever seen one? Perhaps the next big collection of borders could be all dots!

Clipart

Smart 2 Resources is a collection of over 100 draw-files, many of which contain more than one example of a particular design. There are more than 300 pieces of artwork and line drawings, making a collection of useful design elements which can be used in all manner of publications. You will find seven files of arrows – almost every arrow you could ever think of. There are four files of corners, from crazy squares to pins to wavy lines. There are four sets of flashes as well as some individual flash-type drawings. There are groups of speech and thinks bubbles, rules and symbols. Then there are ten files of drop caps, giving ten complete alphabets of capital letters in different designs. Add to that over fifty general and border type drawings and you have a very useful set of resources.

Smart Graphics 1 is more of a general clipart collection with 200 plus pictures. There are, for example, over 80 silhouettes of animals and insects, including farm animals, pets and sea creatures... there are 18 assorted flowers... 8 sporting groups plus a few individual sporting pictures... an assortment of European maps, flags and British political symbols...

musical type drawings... 26 fun-type cartoons from a clown to a ghost to footprints... and there are a few people drawings.

As with any clipart, the quality will vary from picture to picture, and there are certainly some here I wouldn't be seen dead with. Having said that, most

of what's there is pretty good. I've had them for the last six weeks and there are a lot I have already used.

You can get them either as Draw or Artworks files, and each of Smart Graphics pack 1, Smart 2 Resources, Smart Borders + and Smart Borders 2 costs £14.95 inclusive from SmartDTP. **A**

Leisure Software Upgrades

Andrew Rawnsley

Over the last few months, various pieces of leisure software (not just games) have been upgraded to give them a longer shelf-life. This should be good news for the user, as upgraded software can only be better than the original, can't it?

Aldebaran

This is probably the oldest upgrade, and is really only relevant to ARM 3 owners. Readers may recall that the original game received good reviews, but with some reservations as to the wire-frame sections of the game.

The new version makes you feel that the original was purposely cut down to work quickly on ARM 2 machines, since it doesn't so much feel 'enhanced' as that the ARM 2 version seems downgraded. It isn't of course, but the best enhancements always merge seamlessly into the old version and simply make the game far more appetising.

As mentioned previously, the wire-frame sections have been improved – not to solid graphics, but many more wire frames have been introduced making the effect much better. The solid graphics have also been enhanced, particularly those of the planets which now look like the smooth spheres they should be.

If you had any doubts about the old version of this original and involved arcade simulation, forget them, and buy the new version.

Upgrades may be hard to come by, due to the *European* nature of the game. At the October Acorn User show, it surfaced on the Klein Computers stand, but you may need to contact the Swiss distributors Evolution Trading AG. (Aldebaran costs £32 through Archive.)

Spheres of Chaos

Matt Black have achieved considerable success with this Meteors clone, and recently I discovered that it had been selected for a regular challenge on a Sky TV computer show! The latest versions feature even better graphics (the beautiful explosion showers have to be seen to be believed), more adversaries – each with their own characteristics, up to eight players, I think, (the review version only allowed four, but I believe the Sky version allows eight) and loads more configuration options. When you think that each level is generated randomly, and you can control the amounts of each type of alien, there are millions of different level possibilities.

Spheres of Chaos is certainly one of the best multi-player games around, and if you have some friends available, the evenings just seem to vanish!

As a single player game, it is not so strong because, since despite the volume of options, the formula on every level is fairly similar – blast all the aliens and collect any power-ups. You really need a second player to get the most out of it. Having said that, you could do a lot worse than buying a copy of this game for a rainy afternoon on your own!

Spheres of Chaos costs £24.95 from Matt Black, with an upgrade available from the original for only £5 (plus your original disc, of course) which represents excellent value for money.

Games Wizard – The Apprentice

Readers may remember that I found the original release of this cheat compilation rather limited in hacking features (compared to The Hacker from DoggySoft) and overpriced.

This new version offers a few more cheats (about 50 – 60 in total) but there are still really not enough

compared to over 100 with The Hacker. It is a copy-protected disc and has no hacking features at all (surely a downgrade!) and with a price tag of £19.99 it isn't going to have much of an impact.

Remember that all of The Hacker's cheats can be obtained for a blank disc and £1 p&p to DoggySoft and I don't think you'll find it hard to pass on GamesWare's offering.

James Pond 2+

This is a conversion of the Amiga 1200 version of GamesWare's cute platform hit. The new version offers improved graphics and sound, as well as some new levels. These are scattered throughout the game, and include an upside-down 'jelly-level' as described in the original review.

You can probably imagine what it's like bouncing madly up and down around the level, but playing it upside-down...?!?

James Pond 2+ is certainly better than the original, and retails at the same price, thus replacing the old version in GamesWare's catalogue. It still lacks a save game or password option, which seems important in this new larger version, but otherwise I can't really fault the product. If you like cute platform games, buy James Pond 2+!

As an upgrade, the new version will cost you £7.99 from Gamesware which I feel is a little excessive. Mind you, that includes p&p. If you are a dedicated Pond fan, desperate for more, then spend the money, otherwise you may be content with the large, and often difficult, original. (James Pond2+ costs £24 through Archive.) **A**

ScreenTurtle

Richard Rymarz

ScreenTurtle, written by Marshal Anderson and published by Topologika, has been around since 1991. It was then described as, '..... a friendly, safe Logo graphics environment for students to work in.' I have used the program extensively with my class of 10 and 11 year olds, finding it more than adequate.

Now Topologika have released a new version called Desktop ScreenTurtle. It is an altogether more sophisticated package and addresses some of the short-comings of version one as well as adding new features.

Why Logo?

Logo is specifically mentioned on a number of occasions in the National Curriculum. Regardless of this requirement, Logo is good fun, allowing children to draw shapes and objects quickly; it can help children learn to understand some simple programming concepts such as 'procedures'; it can provide problems which can be solved in a number of ways; it can lead the way to controlling floor turtles; and it allows children to make mistakes which are easily rectified or which provide further insights or solutions.

There are a number of 'official' versions of Logo but, for the primary school, something simpler and easier has been provided. There is a version that comes with Sherston's excellent 'Crystal Rain Forest'; Longman Logotron have produced 'First Logo' which offers a very gentle introduction to Logo where everything can be mouse driven; and Topologika themselves publish 'TinyLogo' which introduces simple concepts to very young children. ScreenTurtle continues with this emphasis on ease of use, although the level of sophistication is higher.

The package

ScreenTurtle comes in a sturdy case. There are two discs: disc one contains the program and the usual !Scrap, !System and !Sysmerge applications. Disc two contains example words (procedures) and screens (backdrops), a Tiff conversion utility allowing Tiff files to be converted to sprites and vice versa; and !Dribble, a new utility that keeps a constant record of everything the user does. This provides a record of how a child has reached a solution to a problem or simply a journal of what he has done.

There is a comprehensive manual, a booklet that provides useful information concerning installation,

differences between using RISC OS 2 and 3, hard and floppy disc operation, using printer drivers, problem solving, and so on. There are a number of worksheets to start the children off, a function key strip and, finally, there is a booklet written by Marshal Anderson which outlines the use of Logo in the classroom as well as offering a number of pre-Logo games and some more advanced ideas.

Using ScreenTurtle

Clicking on !ScreenTurt loads the program and is represented by a turtle on the iconbar. This is a major change from version one which took over the whole screen. Now the program is fully RISC OS compliant although, if desired, a full screen option can be selected. Choices are made by clicking <menu> on the turtle icon and selecting the preferences option. This allows no fewer than four possible layouts, a selection of screen mode, whether the tool window is shown, the command window colours, the number of commands that the undo buffer holds, whether screens are saved as sprite or TIFF files and the scaling and screen angles options. It is all very comprehensive.

My preference is for the desktop version with the toolbox visible. Three windows present themselves, the largest being the work area where a pointer (turtle) sits at its centre. Then there is a command window where instructions are entered and one which provides a toolbox containing twelve of the most commonly used commands. All window can be resized, which is great, because you can move the windows around so that the monitor screen is used most effectively.

In use, the program is very simple. Either typing in commands or using the toolbox require the minimum of effort. One lovely feature of ScreenTurtle is that it understands a variety of words to execute a command and will 'guess' if a command is unclear. It will then tick a command that is acceptable. It will accept upper and lower case letters and give fairly helpful on-screen error messages. Finally, there is a very comprehensive, mouse driven 'Help' system.

Conclusions

My children enjoyed using ScreenTurtle. It was used very simply by my slower children whilst the brighter ones were soon defining procedures, filling and painting shapes, and even defining procedures within procedures. Saving drawings was easy but there was some confusion when loading and saving procedures. It can easily be used by children at the upper end of Key Stage 2 (8 – 11 year olds) and at the lower end of secondary schools. If I had to nit pick, I would have liked to be able to edit commands in the command line window although a limited amount can be done in the procedure define window.

With such a wealth of additional materials, the program, which retails at £39.95 +VAT or £44 through Archive, is excellent value for money. There is an upgrade path from version one which costs £10, with a 50% reduction for site licences. All in all, this is excellent value for money for an implementation of Logo that bridges the gap between a simple introduction to Logo and the 'real' thing. **A**

Magic Pockets

Andrew Rawnsley

This release of the Bitmap Brothers' successful Amiga/PC platform game represents software giant Renegade's first foray into the Acorn games market. The product certainly doesn't feel like a quick conversion – you know the signs: pretty graphics toned down to make conversion easy; reused Amiga or ST boxes with 'Acorn Version' stickers plastered on. The reason that I mention this is that with Sensible Soccer ready for release now, Renegade

would appear to be jumping straight into the water, not just testing it with their toes, so to speak.

The plot

Perhaps I should have learned to steer clear of the plot for a platform game – they are usually nearly as bad as those of shoot-'em-ups! Magic Pockets is all about a kid – the Bitmap Kid (groan). The Kid has special Magic Pockets, which have an infinite capacity, to store all his favourite toys. Unfortunately, his toys have vanished, so the Kid leaps into his pockets,

risking life and limb, to rescue them. Clearly the Kid knew nothing of physics – the box illustration shows that there is no way the kid could get his head through the opening of the pocket!

Loading the game

But to the game itself... Booting reveals a nice intro, complete with soundtrack by Betty Boo ('Doing the Do'). It's a shame that this music doesn't continue into the game, on ARM3 machines perhaps, given the enhanced audio capabilities of Acorn machines. There is a version of the game with higher resolution graphics, for those with VGA and multisync monitors – *even* the old Acorn multisync!

The game is copy-protected by the key disc method, but it's not until you try to start the level that you need to insert the disc (obviously this only applies to hard disc owners).

The levels

Anyone who has played Gods (from Krisalis, but original written by the Bitmap Brothers and marketed on the Amiga by Renegade) will be familiar with the style of the game. Unfortunately, the similarities continue right down to the graphics of the first zone. There are four main graphical environments, each split into numerous levels. Each time you finish two of these levels, you are given a four digit numerical password, which allows you to skip them in the future.

The major disadvantage of structuring the game in this way is that these environments can quickly become boring – even with extremely well drawn and detailed graphics such as those on offer here, so variety is needed to keep you playing. This, for me, is where Magic Pockets fails – there are too many sub-levels in each zone, all with the same graphics and associated problems:

The Cave – 5 levels
The Jungle – 6 levels
The Lakes – 8 levels
The Mountains – 7 levels

Clearly six zones with four levels each, or five zones with five levels each (already pushing it a bit) would be preferable.

Gameplay is simple – you have to throw weapons, or send yourself spinning, into the nasties ('bad

people') to destroy them, and collect power-ups; and to try and find the 'best toy' on each level before going through the exit. A fairly basic platform game in design, and the problem is that there are no real puzzles to solve – you simply have to keep killing bad people, and exploring, until you find the toy and the exit. At the end of each graphical zone, there is also a special event, rather like an end of zone guardian in other games.

Forgive the comparison with Gods, but I found that to be rather more fulfilling, since you could carry around objects and keys leading to reasonably intricate puzzles, making the game much more mentally pleasing.

I feel that the Bitmap Brothers have tried to make up for this flaw in the gameplay by giving us more levels, hence the problem described previously.

The power-ups

To be fair, Magic Pockets does include lots of power-ups and teleporters to bonus rooms, which do add to the gameplay. The next power-up to be released is shown in the bottom corner of the screen, and can be changed by careful destruction of bad people. However, to my mind, lots of power-ups really don't make up for the lack of puzzles.

Conclusions

Maybe the problem is me? Gods was my ideal game – puzzles in a mythological environment. After role playing games, this is my favourite genre of game, so maybe I'm not being fair on Magic Pockets.

However, most of my Amiga and PC owning friends seem to agree that Magic Pockets isn't really up to the usual calibre of Bitmap Brothers' games, since it lacks something in gameplay – no puzzles!

Anyone who wants a real treat in platform games should go for Gods, and when you've finished that then turn to Magic Pockets. I'd like to say that Magic Pockets was the poor man's alternative, but it costs more!

If you *are* looking for a new platform game, and have finished or are tired of Gods, then give Magic Pockets a go. However, at £25.95 (£24 through Archive), you need to be sure it's the game for you. **A**

Circus

Richard Rymarz

Maths Circus, from 4Mation, is a series of games designed to stimulate problem-solving skills at Key Stages 2 and 3. However, 4Mation say that the simpler levels can be solved by even younger children. It comes on one disc and can be loaded onto hard disc although a key disc system is used for protection purposes. It costs £27.50 +VAT for a single user version or £55 +VAT for a site licence – Archive prices are £30 and £60 respectively.

Aims

Circus is composed of twelve games loosely based on a circus theme. Each game contains five levels – sixty in all – and are designed to allow children use of their imagination, initiative and sense of experimentation. There is no use of drill and practice – all the problems are 'open ended' allowing the children to use trial and error to produce strategies that succeed. Each level is graded so that children are not penalised for failure but are motivated to try again or use a new strategy to succeed. Teachers and parents are NOT encouraged to help or provide solutions – but careful matching of levels is necessary.

Getting started

Clicking on the Circus icon results in a full screen picture of a circus tent on which are printed the menu options. These include: instructions for the children, a practice option from which the children's results are not recorded, starting a new circus, continuing a saved circus, teachers' options and, of course, quitting. The teacher options allow the viewing and deleting of saved circuses, setting the level of default difficulty, switching off the sound and so on. All are easy to understand and use. A coding system is used to record the children's progress.

The problems

The children soon master how the mouse is used to control the games although I feel that young children will need some adult help. Thankfully, the problems all use the same conventions.

Seals – This involves placing the correct balls on the noses of the seals. At its simplest level, moving

the balls left and right is sufficient. Later, the problem takes on the guise of a two-dimensional 'Rubik's Cube' (can there be such a thing?).

Trapeze – This involves an investigation into the properties of a pendulum.

Magician – Here, the children have to save Marvel the Magician from the wicked witch and her monsters.

Traffic Lights – This involves careful observation and note-taking of patterns, as the children attempt to avoid the traffic lights when going to the circus.

Canon – A lovely problem involving elevation and gunpowder strength as the children attempt to fire Captain Blunthead through a series of holes into a bucket of water.

Cage – This does involve practice of simple arithmetic and is the least visually inspiring.

Unicycles – This involves balancing a group of unicyclists on a see-saw. Simple addition and subtraction are needed to keep the unicyclists from falling.

Tickets – Once again this gives practice at arithmetic but, at the more advance levels, it involves multiplication. The aim is to calculate the relationship between the number of tickets and the circus takings.

Elephant – This is an investigation into capacity and involves working out how much medicine to give the sick elephant.

Bolts – This puzzle gives practice in spatial awareness in two and three dimensions. Bolts are missing from the scaffolding and the problem is finding where the gaps are.

Clowns – Clowns are sitting down holding different implements, each of which affects those next to them. The aim is to make all the clowns stand up at once.

Lions – This problem involves sorting lions out in order of size. Bigger lions can jump over smaller ones but not vice versa.

Conclusions

This suite of problems is definitely good value for money. The graphics are not arcade standard – in fact some are fairly basic. However, I firmly believe that it is the active and supportive parent and teacher that will help children achieve the best from any piece of 'educational' software. The programs were tested by a group of children ranging from 9 to 11 and were enjoyed by them all. Listening to their strategies was a treat, and all but the highest levels were within their capabilities. Documentation is excellent for the teacher/parent providing further

assistance and extension ideas. For the children there is a series of twelve double-sided worksheets to assist and supplement the program.

These programs make a welcome change from other suites of mathematical computer programs where more emphasis is placed on drill and practice. I wonder whether the simplistic graphics would appeal sufficiently to Key Stage 3 children – I sense that more sophistication would be needed to inspire them. However, for children from the age of 5 to 12 there is plenty here of value to recommend. **A**

Virtual Golf – Augusta Course

Richard Rymarz

This is the second course offered by 4th Dimension and adds to the Wentworth Course originally written for the Virtual Golf simulation and released before Christmas. Written by the prolific Acorn games writer, Gordon Key, it features the American Masters course in Augusta, Georgia. I thoroughly enjoyed 'playing' Wentworth and readily grabbed the opportunity to review this latest offering.

There are a number of golf simulations or games on all computer formats – the Acorn range has at least four. Until the release of Virtual Golf, the best by far was Micro Drive published by Cambridge International Software. This came with two courses as standard and more were added. There is also a course designer. This is not a comparative review or a full review of Virtual Golf – that was done in Archive 7.1 p33, but I will briefly summarise of the original. The main aim of the game is to win six tournaments beginning with the Beginners' Handicap and ending with the British Open. However, the main difference between Virtual Golf and its predecessors, which sets it apart from its rivals, is that the swing of the club is determined by the movement of the mouse rather than any swing meters or timed clicks of the mouse buttons. Consequently, practising moving the mouse itself – keeping it in a straight line – will result in the ball flying straight. This may sound complicated but it does give a feeling of actually playing the shot. However, it also makes the game more difficult because any deviation from a straight line results in a hook or slice, and the

quicker the mouse moves the stronger the shot. Practice is needed. The game runs from the desktop and there is a huge variety of options including, action replays of shots, practice of any hole, 'gimmies', alternative seasons and even access to the driving range.

So why spend another £16 on the Augusta Course? Well, if you have the original game – which you must have to run the Augusta Course – you will probably be bored with being the British Open Champion. Becoming the Masters' Champion must spark the competitive nature inside you and the challenge will be too great to resist. The format is similar to Wentworth although the scenery has been improved and, finally, the behaviour of the ball is different from its movement at Wentworth. Apparently, the atmospheric conditions at Augusta result in the ball having different characteristics.

I have a book showing maps of some of the holes at Augusta and, comparing them with Gordon Key's versions, I can verify that they are very similar. One feature I am a little unsure about is the much-feared putting difficulties at Augusta. I feel that Gordon has been a little kind and made the greens quite damp, making putting a touch easier than the real professionals have to face. However, this course is well worth the money for those who are already past masters of the game and its success should guarantee further courses. I wonder what the ball characteristics are like at St Andrews, or Pebble Beach, or the Royal Melbourne or **A**

Navigator

George Barnett

Navigator is a package to help the teaching of mapping skills. It provides various ways of navigating a pointer, or 'dart', around the screen which can contain any kind of picture but, usually, a map or plan of some sort.

You can navigate in the following ways:

Rubber banding – This is not really a navigation system but it provides a way of drawing routes onto your maps, as well as allowing the introduction of some of the package's features.

Turtling – This provides, at two levels of sophistication, a turtle graphics activity based on turns and moves.

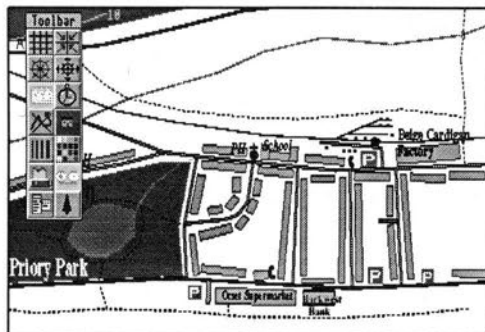
Lat&Long – This lets you navigate around the screen using degrees, minutes and hundredths of minutes.

Compass Points – With this, you can move using 4, 8 or 16 compass directions.

Ordnance Survey – This uses Eastings and Northings.

Bearings – This allows you to move using absolute bearings from north.

Vectors – With this, moves are relative to the current position of the user on the map.



Police Plan

The use of the program

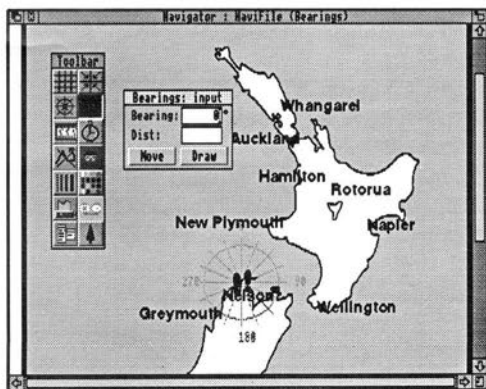
The aim of the program is to develop navigation and mapping skills. You move around a map or plan using one or more of the seven ways shown above and the scale can be adjusted as required and a coloured trace can be left customised to colour and thickness.

Maps

Many maps or plans are supplied as examples on one of the three discs which come with Navigator, and the documentation helps, should you wish to create your own. Normally, in a class situation, specific maps would be required of the area being studied and these can be found from various sources, but watch the copyright restrictions. Many maps are supplied as drawfiles and those from David Pilling are excellent and cheap. The manual gives several source suggestions.

Getting started

First register the disc, which may then be copied. Double click on the !Navigator icon which will then be installed on the iconbar. Open up one of the Activities Disc e.g. (School), then double click on the !Nav_Data icon. This opens a window containing the maps that Navigator knows about. Maps can be sprites (uses up memory), drawfiles or compressed Imagine (or even Tiny Draw) files. The required map is then dragged to the icon on the iconbar. Navigator will then start up with that map



Let us look at New Zealand – sample map

with the title (filename) of the map and the navigation system in brackets.

You will see the dart, either at its default home position or at the home position recorded for that map. The maps appear on the screen with a Toolbar containing fourteen options: grid, snap to grid, fixed compass, measurement, timer, home dart, line thickness, line colour, print, record, stop record and a switch from toolbar to tool menu. Linkpoints are available to enable interconnection between maps or plans.

Clicking <menu> on the Navigator icon on the iconbar will give you a menu with Info, Save, Clear, Quit and four other options. These are: to use the full screen, calibration, preferences (setting of defaults), and Nav System. To change the navigation system click on 'Nav Systems' and a second menu appears showing these choices.

The first exercise recommended is called 'Going to School' and this is a series of three maps demonstrating large scale movement. A pupil's journey

from home to school is shown, ending up at a desk in the classroom with an appropriate congratulatory message to those successful in their navigation. 'Around the world in eighty ways' is a more advanced planned route supplied as an example and this is quite impressive.

Support materials

The A5 manuals are excellent. The main manual (43 pages) is well indexed. There are teacher's notes and six ready-to-use disc-based activities. Included are sample maps from National curriculum Key Stages 2 to 4 in Geography and the program will be useful in Geography AT1 and AT4 skills and parts of Maths AT3 and 4.

Conclusions

Navigator is a worthwhile program, not expensive, well-documented and is supplied by Topologika at £45 +£2.50 p&p +VAT or £52+VAT through Archive. Site licences cost £70 +VAT for primary schools and £85 +VAT for secondary schools direct from Topologika. **A**

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are fax numbers)

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